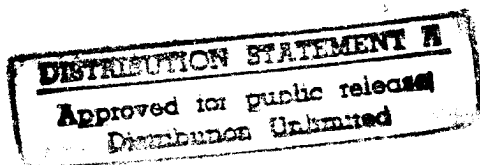


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# ***JPRS Report***



## **Soviet Union**

### ***Economic Affairs***

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## ECONOMIST CALLS FOR END TO BUREAUCRACY, PROVINCIALISM

Moscow EKONOMICHESKIYE NAUKI in Russian No 2, Feb 87 pp 3-10

[Article by Professor G. Gorlanov, professor, doctor of economic sciences, Leningrad, under the rubric "Development of Economic Theory in the Materials of the 27th CPSU Congress": "The Priority of Public Interest Is the Basis for Overcoming Bureaucratism and Provincialism"]

[Text] The policy for accelerating the country's social and economic development, which the 27th CPSU Congress approved, first of all assumes the establishment of a mechanism for the workers' all-embracing (universal) interest in its most effective implementation. The political report of the CPSU Central Committee to the 27th party congress emphasized: "The success of any task is determined to a decisive degree by how actively and conscientiously the masses participate in it. To convince the various strata of society of the correctness of the selected path, to interest them in it morally and materially and to restructure the psychology of personnel -- these are the most important conditions for accelerating our growth."<sup>(1)</sup> Having laid down a consistent strategic policy for realizing this condition, the congress clearly and simply defined its main component -- the priority importance of public interests within the complex interest system of the subjects of socialist production relationships, which includes various private and individual interests.

The objective necessity for this type of priority had also been emphasized earlier. However, this problem basically boiled down to coordinating the interest of the individual, work collectives and the state. Both in economic theory and in economic practices, insufficient attention was clearly devoted to questions of coordinating the interests of branch and regional production economic assemblages in one respect, enterprises making up their structure in another respect and socialist society as an integral system in a third respect. As a result, an impression was formed that the interests of the ministries and departments under the existing branch system for managing the national economy (just as the interests of the administrative territorial rayons under the "sovnarkhoz" system that existed at one time) were actually identical to general state interests. The erroneousness of this identification was revealed -- unfortunately -- not in the works of economic scientists, which forestalled practical solutions, but in economic experiences themselves and in the difficulties which it encountered. Proceeding from this

experience and guided by a creative understanding of the propositions in Marxist-Leninist theory, the 27th CPSU Congress made an important contribution to the development of the question of economic interests in a socialist society in close connection with present-day practices in its development. The political report to the congress directed attention to this urgent problem "... the regulating of socialist property relations such as insuring the unconditional priority of public interests over the interests of branches and regions." M. S. Gorbachev pointed out: "Ministries, departments and territorial bodies are not the owners of the means of production but only institutions for state control that are responsible to society for the effective use of national property. We cannot allow bureaucratism and provincialism to interfere in realizing the advantages of socialist property."(2)

Under the conditions of socialism, both the supporters and the opponents of the recognition of the relative economic isolation phenomenon and the corresponding isolation of interests regarded, as a rule, only the production collective of a socialist production enterprise as its subject. It is only during the last 10-15 years that they have begun to investigate (primarily from the point of view of forming union and autonomous republic economic complexes) the problems of regional economic isolation. Concerning branch (department) production economic formations, they were actually, essentially and generally not examined in this aspect by economic scientists in general and political economists in particular. Bureaucratism and provincialism were earnestly and constantly castigated as an evil and this, of course, is correct. However, this was not followed by a scrupulous scientific analysis of the economic, social and organizational reasons why such a correctly revealed evil had existed so long and was reproducing.

Why has the problem of bureaucratism and provincialism appeared now with such sharpness and urgency? First of all because as our society progresses, its existence becomes a stronger and stronger brake on the path of this progress. The political report of the CPSU Central Committee to the 27th party congress pointed out: "Cases -- which are not at all isolated ones -- where ministries and departments erect new installations under the banner of reconstruction and stuff them with obsolete equipment, or develop expensive plans that do not insure the movement of production to high technical and economic indicators, prick up one's ears."(3) Along with this "... quite a few scientific discoveries and important inventions do not find practical application for years and sometimes for decades." Furthermore: "The arrogance of individual groups of scientists, departmental hostility toward 'someone else's' inventions, and the lack of interest by production workers in their introduction often lie at the basis of such an attitude toward what is new."(4) This occurs on the one hand. On the other, "proposals, which have not been studied in the necessary manner and which are dictated not by national economic interests but rather by parasitical and arrogant ones and which pull the economy into capital-intensive projects of low efficiency, often arrive from places. The required attention is not being paid everywhere to raising production efficiency. In Kazakhstan, for example, national income per unit of fixed production capital is a third less than the average for the national economy. In Turkmenia, the productivity of social labor has not grown for 15 years, generally speaking."(5)

Such a situation could only have taken shape by underestimating the special place of branches and regions in the national economic organism, which is closely connected with the a priori identification of their specific interests with public and state ones. The underestimation in the scientific analysis of the significance and role of the relative isolation of the management links, including such important ones as the branch and region, did not contribute in practice to overcoming the isolation, toward which those -- who committed this underestimation -- were oriented; but, on the contrary, to the fact that the relative isolation began to acquire the features of absolute isolation. It was this process that led to the persistent existence and reproduction of bureaucratism and provincialism as economic phenomena. Thus, the striving (probably sincere and good) to pass off what was desired for what was real in theory and the denial of economic realities, which did not have room for subjective ideal schemes in Procrustes' bed, took vengeance for this rejection of a healthy approach to reality and contributed to extremely negative phenomena in economic practices.

As a result, the opinion, according to which both bureaucratism and provincialism are phenomena of a subjective order, gained a foothold in theory and practice. It naturally followed from this that there was no need to look for objective root-causes of this evil and root them out: You see, they simply do not exist. The task essentially boiled down to indoctrinational work with personnel as such: It is this which is capable of helping them to overcome the subjective aspect of an error. Naturally, this could not provide any effect -- especially since the understood idea of their stability often lets itself be known falsely during work with personnel. Conditions were established under which the adjustment of plans during the time they are in effect -- most often at the end and, generally speaking, after the planned period (naturally, in the direction of lowering it) became commonplace; the management staff of individual branches ignored with impunity government decrees on improving the economic mechanism; and the directors of a number of oblasts and even republics displayed parasitical attitudes.

Of course, when we talk about interest (in particular, that of a branch or region), one can in no way fail to take into consideration the subjective element. However, if a significant stability is detected in it -- especially if it is widespread -- it is necessary to have the courage to admit that there is a completely objective basis behind the outwardly purely subjective blunders. It seems that in conformity with the subject being examined here, the phenomenon of the relative economic isolation of branch ministries (departments), of all sorts of regional formations, of the presence in them of specific economic interests (which differ not only from public and state interests but also -- in some degree -- from the interests of the enterprises that are included under the jurisdiction of a given department and located in a given region), and finally, of the perfect overcoming of the linear organizational structure for managing the country's national economy, emerges as one of this type.

The appearance (phenomenon) of relative economic isolation is organically inherent in a socialist economy during the first phase of developing a communist mode of production. In the most general sense, its essence consists

of a relatively isolated combination of production economic collectives at different levels (enterprises, branches, and regions) with qualitatively and quantitatively defined means of production; of a relative -- in this connection -- isolation in the functioning of the production, economic and social processes at a given level; of the achieving of an isolated production economic effect and its relatively isolated implementation in an economic and social regard.

In our opinion, the technical and economic diversity of production forces, which function in some element or other of the country's national economic structure, is the reason for the preservation (presence) of relative economic isolation. The higher (or lower) quantitative and qualitative characteristics of the means of production used in each one of them and the corresponding work collectives' qualification level, which is conditioned by them, assure a different labor productivity, a different economic effect and -- in full accordance with the socialist principal of distribution according to work and its results -- a different percentage in the net product distributed at the society level. This fully pertains both to enterprises and to branch (interbranch) and regional assemblages, naturally, taking into account the specifics of the given economic formation. These specifics do not boil down to a simple total of tasks and functional goals. If one has in mind branch and regional assemblages, they are complicated production, economic and, moreover -- to a certain degree -- social systems with special purposes, interests and functioning and development regularities internally inherent in them. In the most general view, they can be described as purposes, interests and regularities for the self-preservation and self-reproduction of a complicated system such as this one. That is why it would be naive to suppose that the managerial staff of some department or region will direct and make its activity commensurate, on the one hand, only with the specific interests of the enterprises subordinate to it and, on the other hand (at the same time) -- exclusively with the interests of the state without considering the branch's (region's) own interests during this.

What are the items in the interest system of branch (interbranch) and regional assemblages of socialist production enterprises? Here, it is necessary first of all to point out their intermediary function (role) between the enterprise as the primary and basic link in physical production and the country's unified national economic complex and the socialist state as an integral social and economic system. In realizing society's interest, branch management bodies have been called upon to assist in satisfying society's needs for products in their specialization. The local bodies of state power must assure, on the one hand, the realization of the special needs of the population in its region and, on the other hand, the general conditions for the effective -- from society's position -- functioning of all enterprises located on the territory under its jurisdiction. Thus, under the now existing department system for managing the national economy, branch management bodies are solving to a greater degree technical, economic, territorial, and social tasks in the functioning and development of a socialist society. Within the limits of their solution of specific tasks, they exercise direction over the work collectives under their jurisdiction



Thus, we are running into a real contradiction in realizing the main purpose of socialist production: The direct satisfaction of physical and spiritual needs is under the jurisdiction of the local bodies of state power, i.e., regional control, but the coordination and direction of the process for producing these goods and determining their qualitative characteristics is being carried out by branch management bodies. It is possible to characterize this contradiction in a different way -- as something that has taken shape between the technical, economic and social aspects of indivisible social production. The distortion in the solution of concrete social and economic tasks, which was subjected to convincing criticism during the 27th CPSU Congress, also springs from this. The political report to the congress says in this connection: "The well known distortion in the direction of technocratic approaches has weakened attention on the social aspect of production, life and leisure. This could not fail to lead to a lowering in the workers' interest in the results of their work, to a weakening in discipline and to other negative phenomena>"(6)

One can conclude from what has been said that branches and regions have their own specific interests that are determined by the special avenues in their functioning within the limits of the economic mechanism in effect. They are, first of all, the interests in selecting the simplest version for carrying out their functions. That is why, under the conditions of modernizing production, a branch can orient its enterprises not toward the output of products that are needed by society and targeted by consumer characteristics and expenditures, which is possible on a new technological base, but toward the achievement of the planned indicators for assimilating the assets, which are intended for modernization, in the easiest way. As was pointed out during the 27th CPSU Congress, such "modernization" often boils down to a rudimentary replacement of physically worn-out equipment with new, but which has the old technical (technological) parameters.(7)

In occupying a leading position in their branch, branch scientific research organizations are really interested only in introducing the results of their own research. This often dictates the absence of an orientation toward achieving high international analogs. Concerning the interest of the local authorities of the regions in the results of the activity of the entire assemblage of enterprises and the increase of the latters' contribution to the achievement of the highest national economic results, this interest is practically lacking under the conditions of the presently operating economic mechanism and procedure for forming the income portion of local budgets. That is why measures to raise it by aiming at the final results of the production and economic activity of their industrial and agricultural enterprises are extremely timely. Thus, "firm product delivery volumes to the centralized funds will be achieved for the republics, krays and oblasts in the future, and everything that is produced above this will remain for local supply."(8) M. S. Gorbachev pointed out in the political report of the CPSU Central Committee to the 27th party congress: "It should be necessary to think about how to connect the amount of resources, which are allocated for social needs, with the effectiveness of the regional economy more closely."(9) This approach is based on recognizing the objectivity of the interests of a region and the contradictions, which exist between them and public interests. The approach to resolving the contradictions as sources of the progressive movement, which

is responsive, in the final analysis, not only to the priority interest of society as a whole but also the interest of regions, is assured using this basis.

Branch economic interests are just as objective. In this regard, they do not remain immutable and are determined by the specific scientific, technical economic, and social situation. For example, the striving of enterprises in a given branch to have their own auxiliary production facilities for the manufacturing of general industrial use items and containers and for the repair of broad profile metal-cutting equipment, monitoring and measuring instruments, etc., is by no means dictated by some mercenary personal or departmental interest and aspiration. The explanation here lies in the fact that these vital production requirements of enterprises and branches were not being satisfied reliably in a centralized manner through cooperative deliveries and services. If these ties were reliable and did not threaten an enterprise with the disruption of its fulfillment of production programs, this type of self-satisfaction of requirements would have been ended long ago and for good as an economically unjustified practice. You see, no one thinks about an autonomous and isolated satisfaction of requirements in the electric power and heat power industries or in water since a dependable centralized supply has been achieved here for enterprises. From what has been stated, it follows that the instruction, which is contained in the new edition of the party Program that was adopted by the 27th CPSU Congress on the vital necessity of raising the dependability of economic bonds (10), is exceptionally urgent.

The formation of autonomous branch infrastructure production systems is often caused not at all by the branch directors' proprietary arrogance but by considerations of guaranteeing the fulfillment of planned quotas by subordinate enterprises. It is understandable that the formation of such systems causes a number of negative consequences, among which are cross hauls of similar types of components, semifinished items and raw material, which are unjustified from a public point of view. At the same time, it is also understandable that life itself has put forward the need to form their own specialized machine-tool building base in the machine building branches. This is caused, first, by the inability of enterprises in the machine-tool building branches to satisfy completely and rapidly the needs of their customers for narrowly specialized production equipment; and, second, by the clearly expressed trend toward integrated complexity when forming organizational production structures. The essence of this trend consists of establishing and achieving the organizational and production integrity of the total "train" of enterprises that are directly or indirectly participating in the satisfaction of a given public requirement. Such integrity essentially means that the producers of intermediate and end products are merged into something united that serves to satisfy the requirements not of a single branch but of the country's entire economy. This trend is especially typical of young branches, which have been formed because of scientific and technical progress and which usually begin to develop as complex formations from the very moment of their origination.

Consequently, both the branch and regional production and economic systems and the bodies controlling them have their own specific economic interests within

the limits of the functions being performed. That is why with their identification with state and public interest (incidentally, branch and regional management links are subjectively extremely interested in this), a replacement of the latter by group interests essentially occurs. Although the branch ministries orient enterprises toward fulfilling the concrete indicators in the state plan, their activity is often only indirectly connected with the satisfaction of public requirements for products in whose output they specialize. The fact is that the level of satisfaction of the personal requirements of branch and region management personnel and their well-being directly depend not on the level of the satisfaction of public requirements by the enterprises that are under their jurisdiction but on the fulfillment of generalized planning indicators which, consequently, only indirectly reflect this level. Even if the plan is not adjusted during the process of selecting the means and methods for its realization, the ministry staff far from always proceeds from public interests. Management practices provide numerous examples of this. Let us cite here such significant ones as the plans for diverting part of the flow of northern and Siberian rivers to the country's southern rayons that are devoid of sufficient justification, the practice of incompletely processing mineral raw material by the specialized branches of the mining and processing industry, and the extremely slow updating of products by a number of machine building ministries. These and similar cases clearly testify that a bureaucratic and provincial approach to solving specific economic problems negates resource conservation on a broad state scale for the sake of achieving momentary planning indicators. In this regard, the "Basic Directions in the Economic and Social Development of the USSR During 1986-1990 and for the Period out to the Year 2000" points out: "The directors of ministries and union republics must radically change their attitude toward this task."(11)

The priority of public economic interest is assured primarily by efficiency not only in the functioning but also in the development of enterprises as the primary links in social physical production. The extent of this efficiency depends a great deal on the capabilities and interests of each of them in realizing internal reserves for economic growth. In practice, such realization is successfully achieved only with sufficient independence of the enterprises, the presence of the corresponding rights in them and the coincidence of their economic interests with the interests of higher control bodies. That is why the fewer the management links, the simpler the mechanism for coordination and the narrower the basis on which bureaucratism and provincialism, which undermine the principles of the priority of public interests, can sprout.

It follows from what has been said that bureaucratism and provincialism, on the one hand, interfere with the realization of the priority of public interests and, on the other hand, fetter the independence of enterprises, which is required for their effective functioning and development. In our opinion, this situation has a base in the present organizational structure for controlling the national economy. Both the present branch and the "sovnarkhoz" -- which existed in the past -- control systems are constructed on a linear basis which is theoretically opposed to the display of independence in the structural links. At the same time, these organizational control structures did not originate from nothing; they were formed as an

objective consequence of the development of production forces and production relationships in a concrete historical economic and social situation, i.e., as a consequence of the requirements of an historical situation. The mentioned control structures in the form of large production and economic systems (for example, ministries) are beginning to carry out not only the tasks and functions, which were determined by the socialist state at the time they were established, but also the tasks of the self-reproduction of a relatively isolated economic assemblage as such. One cannot fail to take into account the fact that the absence of interests in the self-reproduction of systems is just as rare and anomalous as cases of suicide.

In the development of organizational and economic systems that are relatively isolated parts of stronger systems, everything proceeds normally up to the point where internal and local interests begin to prevail over the tasks of functioning as parts of a whole. The arrival at this point means that the presence of a given production and economic formation and, consequently, the corresponding organizational control structure as a whole are not responsive to the achieved level of development of the production forces and production relationships and to the goals of the functioning of all social production. On a public scale, this situation testifies to the lag in the organizational economic portion of economic relationships from their social economic component, on the one hand, and from production forces and the achieved level of the division of labor in society, on the other hand.

The most complete suppression of bureaucratism and provincialism and the assuring of the independence of primary and basic economic links, which satisfies the interests of society, become possible only with a radical breaking up of the existing organizational economic relationships and a shift to qualitatively new structures for controlling the country's unified national economic complex. Under present conditions, this task is being solved by forming integrated interbranch production economic units and assemblages of the agro-industrial, fuel and energy, transport, machine building, and construction complex type. However, even this organizational structure, which is being formed for controlling the economy, still preserves features of a linear nature with the contradictions that are internally inherent in it.

Linear organizational structures for centralized control have historically given birth to extreme conditions in the functioning of the national economy, the presence of very acute shortages, the objective need for rigid centralized control, and the regulation of the production and consumption of all types of resources and all aspects of the activity of managing subjects under the conditions of an extensively developing economy.

Under the conditions of an intensive type of reproduction, an organizational structure for controlling the economy, which would, on the one hand, truly -- and not formally -- insure the economic independence of the collectives in socialist production enterprises for the purpose of realizing internal sources of scientific, technical, economic, and social growth; and, on the other hand, create conditions for realizing the priority of public and not group, department and local economic and social interests, is urgently needed. M. S. Gorbachev pointed out in his speech to the Polish United Workers Party Congress: "We are talking about the solving of a dual task: raising the

effectiveness of the planning and organizing principal in determining ways to develop the national economy and giving all possible elbow-room to the initiative of work collectives."(12) It seems that this dual task can be solved by a gradual shift from linear complex to functional complex control structures. The fundamental qualitative difference of the latter from the linear ones consists of the fact that the production economic activity of each enterprise is regulated not by the management administrative staff of the branch ministries, interbranch special-purpose national economic complexes or territorial production complexes but by central functional economic management bodies of the USSR Gosplan, USSR State Committee for Standards, State Committee for Science and Technology, State Committee for Labor and Social Problems, etc., type and by their interbranch combined departments. The political report of the CPSU Central Committee to the 27th party congress points out: "Gosplan and other economic departments must concentrate on prospective questions in planning, in insuring the proportional and balanced development of the economy, in conducting a structural policy, and in establishing the economic conditions and incentives for achieving the highest final results in each cell of the national economy."(13)

Naturally, the organizational structure of these functional management bodies and their authority must be considerably modified. From a structural respect, they should -- in our opinion -- be subdivided, as a rule, into departments that directly coordinate and regulate -- within the limits of their functional specific character -- the scientific, technical, production and economic activity of each national economic link and, at the same time, the entire integrity of production, economic and scientific enterprises and organizations that are directly or indirectly directed toward the satisfaction of a given group of public needs (for example, food, electrical power, labor assets, construction materials, transport means, etc., etc.)

Under these conditions, the centralized accounting and control of the activity of each enterprise will be carried out by regulating the amount and quality of produced material goods and services, by setting norms for resource expenditures per unit of useful effect and, finally, by setting norms for distributing the achieved economic effect between the enterprise, the region and society as a whole.(14) Thus, each enterprise becomes equal and enjoys full rights and not a non-economically and administratively subordinate subject of management. Under these conditions, the independence of its actions is not fettered by narrow departmental or local considerations. It is regulated only by state-wide purposes and interests through appropriate long-term norms of an economic, social, scientific and technical nature. As a result, centralized and democratic principles in managing the country's national economy are strengthened, optimally combined and supplement each other. Conditions are established for the firm and dependable support of the priority of public interests with the other real interests of the participants in socialist public production being taken into consideration and for the overcoming of the hypertrophy of bureaucratic and local interest (bureaucratism and provincialism) that are alien to socialism.

#### FOOTNOTES

1. "Materialy XXVII syezda Kommunisticheskoy partii Sovetskogo Soyuz" [Materials on the 27th Congress of the Communist Party of the Soviet Union], Moscow, 1986, pp 23-24.
2. Ibid., p 40.
3. Ibid., p 27.
4. Ibid., p 28-29.
5. Ibid., p 37-38.
6. Ibid., p 44-45.
7. Ibid., p 27.
8. Ibid., p 32.
9. Ibid., p 38.
10. Ibid., p 147.
11. Ibid., p 234.
12. PRAVDA, 1 July 1986.
13. "Materialy ...", op. cit., p 34.
14. N. I. Ryzhkov pointed out in his report during the 27th CPSU Congress that the task is "to stop petty guardianship and the interference of higher bodies in the legal rights of work collectives and to give them an opportunity to find by themselves the optimum ways to realize plans" ("Materialy ...", op. cit., p 251.

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## GOSSTANDART CHAIRMAN ON STANDARDIZATION DURING RESTRUCTURING

Moscow STANDARTY I KACHESTVO in Russian No 4, Apr 87 pp 3-8

[Article by G. D. Kolmogorov, chairman of USSR Gosstandart, doctor of technical sciences: "Standardization During Restructuring"]

[Text] The January (1987) Plenum of the CPSU Central Committee once again directed the attention of all Soviet people to the basic problem confronting society -- the revolutionary restructuring of all spheres in the social life of the country.

In a speech delivered before the Plenum, the general secretary of the CPSU Central Committee M. S. Gorbachev furnished a comprehensive description of the strategy of acceleration, which the party views as restructuring.

This restructuring constitutes a decisive surmounting of the unresolved problems and stagnant phenomena which appeared in the country's national economy during the 1970's and 1980's and the creation of a reliable and effective mechanism for accelerating the socio-economic development of society.

One of the inputs for this restructuring is that of raising the quality of domestic output and creating high quality machines, equipment, instruments and materials which will be competitive on the world market and on a par with high international achievements. The final result of the work of scientists and designers, engineers and workers and the main sign of a full-blooded and thriving economy is the saturation of the market with goods of a high technical level and quality, goods which will be reliable in operation and consumption.

## An Important Stage In Work Concerned with Improving the Quality of Products

In May 1986, the CPSU Central Committee and the USSR Council of Ministers adopted the decree entitled "Measures for Radically Improving the Quality of Products." This decree defined the entire complex of organizational, economic and legal measures aimed at bringing about the changes needed for ensuring the production of high quality products.

The responsibility of developers and clients for technical level and quality was increased considerably, organizational levers were defined and tasks were issued for raising operational effectiveness in standardization and for restructuring the organs of technical control. Special attention was given to the human factor in the decree -- to training, education, developing the creative initiative of the workers and to strengthening executive discipline.

Almost a year has passed since the decree was published. During this period, state acceptance has been introduced at almost 1,500 enterprises.

Gosstandart [State Committee for Standards of the USSR Council of Ministers], jointly with the ministries, has accelerated considerably the work of examining the existing standards for products, in the interest of establishing requirements for them that will conform to the high world achievements and international standards.

Work must be carried out for the most part during 1987 and finally completed in 1988 in connection with developing standards for the overall technical requirements, with promising indicators, which appear as "tasks" for the designers and technologists for the development of new and promising equipment on a high international level.

Programs for all-round standardization, which encompass the more important types of products and the raw materials, other materials, component items, technological processes and equipment needed for ensuring their quality have become a component part of the all-union special purpose scientific-technical programs approved by GKNT [State Committee for Science and Engineering of the USSR Council of Ministers] and USSR Gosplan, programs which define engineering development in the priority directions with respect to the automation and electronization of the national economy.

The requirements for the certification of product quality have been raised. In the union republics, krais and oblasts, the territorial organs of Gosstandart, in close contact with the party and economic organs, carry out work in connection with implementation of the special purpose scientific-technical "Quality" programs.

The scales have been expanded and an increase has taken place in the effectiveness of state supervision over the observance of standards and technical conditions and over the quality of the products being produced.

However the work of state acceptance this year has shown that many enterprises are continuing the production of obsolete products which are of low quality and reliability, which do not conform to the requirements established for the standards or to the technical conditions and which are not competitive on the world market.

A number of enterprises have still not undertaken the measures called for in the decree of the USSR Central Committee and the USSR Council of Ministers on assigning personnel to the organs of technical control and equipping them with measurement and testing equipment. At many enterprises, technological discipline is low, technical documentation has been neglected and deliveries



by allied organizations of low quality materials and component parts are continuing. The existing economic mechanism is still not stimulating the production of high quality products.

It should be stated directly that the low indicators established in many standards do not conform to the modern requirements of the national economy or to the needs of the Soviet people. There is no direct link between the standards on the one hand and the production plans, prices and norms on the other. This is especially evident under conditions involving the conversion of industry, agriculture and the infrastructure over to cost accounting, self-support and self-financing, to a strengthening of contractual relationships and to expanding the rights and independence of associations and enterprises. A question of extreme importance to us has been placed on the agenda.

Under the Conditions for Restructuring, What Should the State Standardization System Be Like?

On the one hand, the restructuring of the national economic administration requires a strengthening of the effect of state standards on the technical level and quality of products and, on the other -- the removal of unnecessary limitations in the work of associations and enterprises. In the draft law entitled "State Enterprise (association)," it is stated directly that an enterprise is directly responsible for the technical level and quality of the products being produced.

At the same time, the effectiveness of use of such levers for state control over quality as attestation and certification of products, state testing, state supervision over the introduction and observance of standards and state acceptance of products must be raised considerably.

At the present time, USSR Gosstandart, the organ of state control entrusted with management of standardization and metrology within the country, the implementation of a unified state policy in the matter of product quality and also the coordination of work in this area by ministries and departments, is carrying out a great amount of work in restructuring the state system for standardization under the new conditions for management and strengthening control over the technical level and quality of products through standards, in the interest of achieving the principal goal -- raising the quality of domestic products to the international level during the 12th Five-Year Plan.

One important question with regard to raising the effectiveness of standardization is that of restructuring the interaction of central economic organs and ministries in the area of planning, establishment of norms, analysis, control, economic stimulation, price formation and ensuring the availability of the material and financial resources needed for the production of goods in keeping with the international technical level and quality.

This means that the reliability, productivity, material-intensiveness, energy consumption and other indicators established by the standards, must be used as the basis for computing the material balances and the plans for product distribution and be included in the plans for social and economic development in a natural expression together with the quantitative tasks. The

distribution plans must make provision for the availability of the appropriate raw materials, other materials and component items of the required quality.

A standard must become an immutable law for production and in the future -- a task in accordance with the level of requirements for new equipment and the basis for developing the norms and normatives for the expenditure and distribution of resources and also for establishing the price level.

Work has already commenced in many directions in connection with restructuring in the area of standardization, metrology and product quality.

#### Improvements in the Fund of Standards

The first task, which Gosstandart has been working on since the beginning of this current five-year plan, is that of improving the fund of existing standards.

In past years there was excessive growth in the number of standards and in the volume of information contained in them. Thus a need exists for reducing their number and optimizing the information involved.

This work is being carried out in various directions. Thus the plan for the 12th Five-Year Plan calls for the replacement of a number of standards by one standard for a group of homogeneous products of a type of general technical requirements (OTT), with promising indicators for ensuring the production of goods which conform to the international level.

Prior to the end of 1988, the plans called for the development and approval of approximately 500 OTT standards for all groups of homogeneous products for the machine building branches. However, this was only the first part of the solution for the task. The second and equally important part consisted of having the branch standards and technical conditions, according to which a specific product was to be produced, conform to the requirements for the OTT standards.

In 1987, the plan for state standardization called for approximately 21 percent of the existing state standards, which establish the technical requirements for the products, to be raised to the international level. Thus, taking into account similar work carried out last year, by the end of 1987 approximately 40 percent of the state standards for products will conform to the best international achievements.

Standardization planning based upon the development of all-round programs is the only effective method and one which makes it possible to include in the system and make visible an entire complex of standards that will ensure the quality of the final product, while taking into account the diverse requirements of a consumer and the limitations imposed by the availability of resources, the status of the production base and so forth. The five-year plan calls for the development of 41 all-round standardization programs, 21 of which will be for machine building and 10 for improving the quality of consumer goods.

A need exists in the immediate future for eliminating the chief shortcoming of the past -- wherein branches which supplied the materials and component parts, during the course of coordinating and implementing the programs, gradually emasculated them and lowered the requirements embodied in the standards for final products by the leading developers.

The decree entitled "Measures for Radically Raising the Quality of Products" extends broad rights to the developer of new equipment and this opens up the path to creating truly special purpose and genuinely complete programs that are closely aligned with the final result.

The restructuring taking place at the present time and the improvements in the economic mechanism, the considerable expansion in the rights and responsibilities of ministries, associations and enterprises, the program aimed at accelerating scientific-technical progress and developing to a maximum degree the initiative and creativity of collectives of workers, the scientific-technical community and leaders and specialists have raised an objective need for regulating and further improving the existing organizational-methodological and general technical complexes of standards for the purpose of reducing the "paper obstacles" blocking the path leading to the introduction of new equipment.

A most important trend with regard to improving these complexes is that of simplifying their requirements and conditions and also defining their optimum structure.

As a result of work carried out in 1986 aimed at optimizing the fund of organizational-methodological standards, the advisability of reducing their number was recognized: 15 of 36 existing inter-branch systems were abolished, 168 state standards were abolished, 285 were examined and changes introduced into them, 70 state standards were converted into branch documents and RD's.

USSR Gosstandart was forced to abolish practically all of the branch standards which had established their own systems for the coordination of documentation and which increase labor expenditures completely unjustifiably through the carrying out of various routine operations.

The changes in such complexes of standards as SRPP, ESKD, ESTD and ESTPP simplified substantially the system for the development, coordination and approval of design and technological documentation and the organization of production operations. As a result, 50 percent more time was made available to designers and technologists for the carrying out of creative work and the amount of time required for preparing documentation was reduced.

However, a check revealed that the implementation of decisions handed down for regulating the preparation of documentation and making it available to developers is being carried out extremely slowly in the branches of industry. Workers attached to design and technological organizations must be supplied with prompt information on decisions handed down in the interest of accelerating the process involved in the development and mastering of new equipment.

In carrying out this work, Gosstandart is relying heavily upon the Council of Chief Designers of USSR Gosstandart, which was created on the basis of a decision handed down by the Bureau for Machine Building of the USSR Council of Ministers.

In the work of further improving the general technical and organizational-methodological complexes of standards and standardization programs, attention should first of all be focused on developing and improving those systems and programs which ensure an acceleration of scientific-technical progress. This applies first of all to a system for the development and organization of production, to a system for automated planning and to programs for the standardization of automatic flexible production systems, robot engineering complexes, computers and data processing.

An important task for the 12th Five-Year Plan is that of restructuring the state system for standardization so as to ensure, under the new conditions for management, efficient interaction at all administrative levels in achieving the final goal -- the production of goods in keeping with the international technical level and quality.

In view of the fact that in the future branch standards must be developed only for products and only when there are no state standards for them, the ministries must define the structure for the branch standards, based upon the production specifics and guided by long-term indicators for state standards for a group of homogeneous products. In branch standardization, serious attention must be given to such questions as unification, the introduction of modular designs, operational requirements (including repair) and to the establishment of modern means and methods for testing and controlling products.

The organization of and system for developing standards, including the development of standards by working groups of skilled specialists, producers, consumers of products and workers attached to NII's [scientific research institutes] and the higher school, a system which has been employed extensively and which has proved its usefulness, is in need of serious examination.

#### Improvements in the More Important Elements of State Control Over the Quality of Products

As already mentioned above, a conversion over mainly to the use of economic methods for controlling production, based upon complete cost accounting, raises a persistent need for further developing and improving such important elements of state control over the quality of products as certification and state testing, state acceptance and state supervision.

And truly, a most important means for increasing the profit (income) of an enterprise and an important source for self-financing under the new managerial conditions is that of increasing the production of high quality products and obtaining appropriate mark-ups in the wholesale price. At the same time, for the production of products of the first category of quality and obsolete products and also low quality products, an enterprise must be punished by

means of reductions in the wholesale prices and it must bear material responsibility and endure inevitable losses in the cost accounting income of the collective, in wages and in socialist blessings. Thus the certification of products in terms of two categories of quality, the results of which will determine the mark-ups or reductions to be applied to the wholesale price for goods produced, is becoming an extremely effective instrument for raising the quality of products in a planned manner.

In order to eliminate the existing shortcomings in the practice of state certification of industrial products, the responsibility of the state certification committees for objectivity in the decisions they hand down must be raised substantially. The badge of quality must be assigned only to those products which, in terms of their technical-economic indicators (reliability, productivity, material and energy intensiveness, labor safety, ecological and technical aesthetics), surpass the level of international achievements or conform to it and beyond any doubt is competitive on the world market.

The state badge of quality can be assigned only to those products the quality of which was achieved on the basis of a high culture of production and strict observance of technological discipline.

One important trend with regard to raising the objectivity of certification and achieving effectiveness throughout the entire system of product quality control is the further development of and improvements in state testing. A base must be created in the industrial branches for carrying out experimental work and testing which will make it possible to achieve: a comprehensive evaluation of the most important parameters for products, including reliability, especially during the developmental stage for the product, prior to the release into production and industrial operations; thorough acceptance and periodic control over the finished product during its production and also an objective evaluation of the technical level and quality of the product during attestation and certification.

In order to solve this task effectively, the following must be accomplished during the next few years:

- create a normative base and achieve control by means of optimum plans and all of the more important categories of control tests by means of programs, particularly products subject to state acceptance;

- ensure the production of modern testing equipment, created on the basis of unitized modules (units) which make it possible to assemble specialized test stands and units;

- organize the effective use of unique test stands and polygons on an inter-branch basis;

- raise the operational effectiveness of leading organizations in state testing and testing centers at ministries and departments and implement (by stages) at these facilities the formation of a network of independent state testing centers of USSR Gosstandart and ensure the carrying out at these

centers of acceptance testing of new equipment, certification tests and also tests for attestation.

In solving the problems concerned with radically raising the quality of products, substantial importance is attached to the effectiveness of metrological work throughout the country and to creating conditions for the leading development of standards and for radically improving the system for transmitting the dimensions of units to all working means of measurement. A need exists for more improved model equipment. The effect of state testing of instruments on the technical level of the industrial measurement equipment being produced must be increased considerably.

The international level for measurement equipment in use is an indispensable condition for producing high quality products.

Naturally, special attention must be given to such a new type of activity for us as state acceptance.

Only a small amount of time has elapsed since its introduction and yet it can now be stated with confidence that it has played a positive role in restructuring the work concerned with raising the quality of products. Thus a trend has been observed towards raising the operational effectiveness of technical control services at enterprises and associations, production and technological discipline is becoming stronger and the quality of the products being produced has improved, as borne out by the growth in the volumes of products being accepted by state acceptance upon initial presentation.

The initial operational results of state acceptance have shown that more than one half of the enterprises are consistently turning over their products in conformity with the established requirements. Roughly 25 percent of the enterprises are producing products with deviations from the technology and from the requirements set forth in the design documentation. However, it is possible to establish proper order here rather quickly. The remaining enterprises require substantial assistance from the ministries, departments and local organs of administration: in re-equipping production, replacing obsolete equipment, creating modern control and testing equipment and raising the skills of the personnel.

In the interest of strengthening, further developing and improving the work of the organs of state acceptance at enterprises and associations, USSR Gosstandart must carry out a large amount of very important work within a brief interval of time, with the principal trends in this work being:

-- the formation and working out of a system for controlling the work of the organs of state acceptance;

-- methodological and normative support for the efficient carrying out of all of the tasks and functions assigned to state acceptance;

-- organizational-methodological support for and the practical working out of effective interaction between state acceptance and the territorial organs of state supervision [gosnadzor].

In the process, it should be borne in mind that state acceptance is not merely an additional control organ but rather a competent organizer for the efficient uncovering and elimination of so-called "bottlenecks" in the design of products and in the technology for producing them and for organizing production.

It bears mentioning that the creation of state acceptance has in no way negated the importance of such a well-organized service as state supervision. True, with the introduction of state acceptance, state supervision over standards and measurement equipment must acquire a basically new quality, one which would make it possible to raise radically its efficiency and effectiveness.

A substantially new element in the work being performed by the organs of state supervision is constant analysis of the work of associations, enterprises and organizations in raising the quality of products; analyzing the status of affairs with regard to the technical level and quality of products in regions, cities, oblasts, krais and union republics.

In 1987, data banks on the technical level and quality of the more important products being produced in a region must be created at all TsSM's and LGN's [laboratories for state supervision over standards and measurement equipment]. As a result, the organs of state supervision will become the only holders of a general type of information that will not only raise their importance substantially but will also change basically the role played by Gosstandart throughout the entire mechanism of product quality control.

The data banks from all regions, integrated by means of electronic equipment in the GVTs [main computer center] of USSR Gosstandart, must become an important element of information support for administering scientific-technical progress throughout the entire union.

In speaking before the January (1987) Plenum of the CPSU Central Committee, M. S. Gorbachev stated: "Not everybody was aware of the fact that work under the new conditions required a decisive rejection of old habits and methods. And in the final analysis this will depend upon the civil position of each individual and upon his conscientious attitude towards his assigned task and obligations, for which we are all responsible to the party, the country and to our own conscience."

At the present time, in examining the existing operational forms in the area of standardization and quality control, we cannot help but note that a number of negative phenomena recorded here and known for some time are primarily dependent upon those individuals who carried out and are carrying out this work. The conservatism and formalism peculiar to many standardization specialists and the desire to regulate each step of a developer and production worker lead to growth in the number of documents in the systems and complexes of organizational-methodological standards, insufficient skill on the part of developers and illegibility in many formulations, which serve to inhibit the carrying out of the requirements set forth in the standards.

The desire to protect departmental interests has brought about the development of many progressive standards and especially all-round standardization programs, where practically each step involves (and continues to involve) a lack of desire to take into account one's production partner.

The initial operational results by State Acceptance have shown that it is most difficult to overcome one particular habit that has taken root in the consciousness of people over a period of many years -- that of relegating quality to secondary importance.

Beyond any doubt, the question concerning the restructuring of consciousness cannot be solved merely by orders and instructions -- laborious, systematic and persistent work is required at all levels.

But the problem is not one of restructuring alone. Labor, technological and state discipline are of decisive importance with regard to achieving high product quality. There must be proper order and no fancily worded papers can cover the damage inflicted by deviations from the norms and rules

A most important role is being played by the skill levels possessed by specialists, both those engaged directly in the production of goods and also by standardization specialists, metrologists and controllers, all those who are concerned with organizing product quality control.

Towards this end, each branch and region requires a permanently active system of training, one which is not abstract but rather is oriented towards the specific conditions found in a given organization, department, sector or brigade.

A knowledgeable, skilled and well trained specialist can display great independence and employ a more conscientious approach in the establishment and strict observance of norms and rules during the course of his labor activity. Thus, as stated in the decree of the January (1987) Plenum of the CPSU Central Committee "each communist and each citizen must be oriented towards carrying out his work in a continuous, tense and selfless manner. This is the only correct party approach. Efficient and conscientious work by all concerned without exception will serve as a guarantee for success in carrying out the restructuring program.

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## SELF-FINANCING ENTERPRISE PLAN DRAFTING INSTRUCTIONS FOR 1988

Moscow EKONOMICHESKAYA GAZETA in Russian No 17, Apr 87 p 14

[Article: "The Procedure for Developing Plans for 1988 for Enterprises That Will Work on Self-Financing Terms"; the capitalized passage was printed in boldface]

[Text] THE CURRENT MODEL METHODOLOGICAL INSTRUCTIONS ON THE PROCEDURE FOR DEVELOPING PLANS FOR ECONOMIC AND SOCIAL DEVELOPMENT FOR THE YEAR 1988 FOR INDUSTRIAL ENTERPRISES AND ASSOCIATIONS THAT WILL OPERATE UNDER THE TERMS FOR COST-ACCOUNTING AND SELF-FINANCING WAS PREPARED IN CONNECTION WITH USSR GOSPLAN DECREE NO 32, "DEVELOPMENT OF THE STATE DRAFT PLAN FOR ECONOMIC AND SOCIAL DEVELOPMENT FOR 1988," OF 25 MARCH 1987, AND WAS APPROVED BY USSR GOSPLAN 3 APRIL 1987, NO SA-13-D.

Ministries and agencies and industrial enterprises and associations that have converted to full cost-accounting and self-financing (hereinafter called "the enterprises") are using the current Model Methodological Instructions, taking the specifics of the branch's production work into account.

In accordance with the draft of the USSR Law on State Enterprises (and Associations), enterprises that will operate under the terms for full cost-accounting and self-financing are independently developing plans for economic and social development for 1988 on the basis of their five-year plans, approved economic standards, state orders, economic agreements that have been concluded, and the demand for the output (or work or services).

An enterprise's social and economic development is planned in accordance with the principle of democratic centralism, based upon the wide participation of laboring collectives in development and discussion of the plans.

Plans for the economic and social development of enterprises for 1988 are being developed in the following sequence.

1. Ministries and agencies:

organize the enterprises' preparation of draft plans for economic and social development for 1988 in accordance with standard enactments, methodological instructions, the principles for operating under full cost-accounting and self-financing, and the decisions of supervisory organs, develop

plan documentation in accordance with unified procedures, and monitor progress in the preparation of these draft plans;

determine, with the participation of enterprises, change in the demand for the basic output, taking USSR Gossnab recommendations into account;

USSR Gossnab develops and delivers to the ministry (or agency) not later than 10 April 1987 (hereinafter only the day and month are indicated) the ceilings for supply and equipment resources and, not later than 15 April, a refined requirement for output for a broad products mix; and

deliver to enterprises, soyuzglavsnabsbyts [All-Union main administrations for the supply and marketing of materials and equipment] and regional USSR Gossnab organs, not later than 20 April, the ceilings on the basic types of supply and equipment resources (taking outfitting articles into account) and, not later than 1 May, the indicators for producing output for a broad (or consolidated) products mix. The ceilings are determined on the basis of the demand for these resources, the rate of production growth during 1988, and tasks on saving and reducing consumption norms for material resources.

## 2. Enterprises:

perform, jointly with marketing organizations, work with customers and suppliers on determining the products mix and dates of deliveries for output, in order to conclude economic agreements, and present to the ministry (or agency) prior to 11 May drafts of plans for producing output in the detailed assortment for 1988 with a breakdown by quarters. Ministries and agencies, with the participation of enterprises and jointly with soyuzglavsnabsbyts, examine the indicated plan drafts and coordinate them prior to 20 May with USSR Gossnab;

coordinate prior to 20 May, plan drafts with the councils of ministers of the union (without oblast division) and autonomous republics and the executive committees of the local soviets of people's deputies in regard to questions of developing the social sphere, construction, the production of consumer goods, social, cultural and domestic-amenity and other services for the population, the use of labor resources, local types of raw and other materials and secondary resources, nature conservation, and land use;

develop draft plans for economic and social development for the year 1988\* in accordance with the established forms and indicators, based on the tasks and ceilings of the five-year plan, economic standards, and preliminary agreements and orders for the delivery of output, taking into account the refined requirement of the national economy for output for production-equipping purposes and the popular demand for consumer goods. The plan drafts, after being discussed by the work collectives, are presented to the ministry (or agency) prior to 25 May;

present to the ministry (or agency), within the draft plans, indicators for the amounts of capital investment (including investment for construction and installing work) for the reequipping, rebuilding and expansion of existing enterprises, for the construction of housing and other facilities for nonproduction purposes through in-house means (the fund for developing production and science and technology and the fund for social and cultural measures and

for housing construction) and bank credits, declarations of ceilings for contract operations, and the requirement for equipment for these purposes. Simultaneously, consolidated technical and economic indicators for the development of production and of the measures called for by the plans for reequipping where the estimated cost is 6 million rubles or more are presented for examination;

report to bank institutions by the established deadline a list of measures for reequipping that are being financed through resources of the fund for developing production and science and technology and, upon obtaining credit, give a guarantee of its efficient use and the simultaneous repayment of the loans that have been made;

send to USSR Gosplan territorial organs prior to 15 May the amounts of construction and installing work that are carried out by the in-house method through in-house resources and bank credits and the requirements for materials and equipment (with the exception of equipment imported or produced in-house) for these purposes. Simultaneously, enterprises report to the ministry (or agency) the amount of construction and installing work performed in-house for which a requirement for material and equipment resources is declared to USSR Gosplan regional organs, in order to report the total amounts of these operations;

refine the indicators of the drafts of plans for producing consumer goods in accordance with the results of fairs (oblast, republic or interrepublic) that have been held for the wholesale sale of these commodities and report them to the ministry (or agency) within a week after the fair's end; and organize work on the adoption by labor collectives of countercommitments that surpass the indicators called for by the five-year plan.

Plan drafts call for:

the satisfaction of customer demand for high-quality output at minimal consumption of resources, and provisioning for an increase in profit as the main source of wages and the self-financing of production and social development;

fuller use of advanced scientific and technical achievements, a rise in the technical level of production, the efficient use of fixed capital and production capacity, the updating and improvement in the quality of the output in accordance with the customers' requirements, the integrated use and economical consumption of all types of resources, and the use of substitutes for scarce materials and articles;

further scientific, technical, production and social development, mainly through funds that have been earned and the solution of problems of making more complete use of the production potential with a view to fulfilling primarily five-year plan tasks for the year 1988; and

measures for realization of the orders of voters that have been adopted for execution.

Enterprises are taking steps to intensify intraproduction cost-accounting and self-administration as prerequisites for increasing the labor activeness of department, section and brigade collectives and of each worker.

### 3. Ministries and agencies:

based on the plan drafts that are submitted by the enterprises, develop in accordance with the established procedures and indicators a draft of the plan for economic and social development of the branch as a whole for 1988 and present it prior to 1 June to USSR Gosplan and, in the matter of production expressed in kind--to USSR Gosplan and USSR Mintorg [Ministry of Trade], and present the appropriate plan chapters and indicators to other interested ministries and agencies;

provide for mutual coordination of the basic indicators, ceilings and economic standards approved by the enterprises, for the stability thereof, for creation of the organizational and economic conditions necessary for efficient operation, and for observance of the rights and cost-accounting interests of the enterprises;

to account for, in accordance with the proposals of the enterprises, the full amount of the resources of the funds allocated for capital construction, and also the required total of long-term credits for the total amounts of state capital investment and the technological structure thereof, and submit these data to USSR Gosplan within the plan drafts and submit the appropriate indicators to USSR Gosplan, USSR Minfin [Ministry of Finance], USSR Gosbank [State Bank], USSR Stroybank [Construction Bank] and contracting organizations; and

develop, based upon the goals reported by USSR Gosplan for the production of output expressed in kind and by USSR Gosplan and USSR Gosbank for funds for material and equipment resources for 1988, and deliver, before 25 August, to enterprises, soyuzglavsnabsbyts under USSR Gosplan and the supply and marketing organs of ministries and agencies (in regard to the output they produce) the tasks for the production of output expressed in-kind for a broad products mix, and, prior to 1 September--deliver the remaining indicators for the draft of the State Plan for the Economic and Social Development of the USSR for 1988 and for the fund for material and equipment resources.

The soyuzglavsnabsbyts, regional USSR Gosplan organs, trade administrative organs, wholesale trade organizations and the supply and marketing organs of ministries and agencies (for the products they distribute), based upon the data reported by ministries (or agencies) about the funds allocated to them for material and equipment resources, issue specifications and schedule orders and give enterprises prior to 1 September plan documents about the delivery of output.

Disagreements that arise between manufacturing enterprises and the clients (the direct customers, USSR Gosplan organs, and trade and other organizations) about the amounts and the quality characteristics of the output delivered and the dates of delivery thereof are resolved prior to confirmation of the plan for 1988 by the adoption by them of coordinated solutions that are aimed at providing for the maximal satisfaction of the national economy's requirements and the public's demand for the corresponding output. When necessary, disagreements are examined by the ministry (or agency), USSR Gosplan, USSR Mintorg, the appropriate standing organs of the USSR Council of

Ministers and USSR Gosplan in order to adopt a decision prior to approval of the plan for 1988.

The ministries and agencies, after adoption of the State Plan for Economic and Social Development of the USSR for 1988, deliver to the enterprises within 2 weeks the tasks established in the state plan in the form of a state order and only those indicators and economic standards approved in the state plan, a listing of which has been established for the enterprises by decisions by the supervisory organs.

#### 4. Enterprises:

in accordance with the state's order and the planning directives for delivering output, conclude agreements with the customers for delivery in amounts no lower than those called for by these orders and planning directives, in accordance with the Statute on Deliveries of Output for Production-Equipping Purposes, with the Statute on Deliveries of Consumer Goods, and with the special conditions for the delivery;

complete development of the plan for social and economic development for 1988 on the basis of economic agreements that were concluded prior to the start of the year being planned. In addition to the indicators and ceilings sent to the ministry (or agency), they independently determine other indicators needed for formulating plans for 1988. For the ministry (or agency) as a whole, these indicators are considered as the sum of the enterprise's plans; and

report the basic indicators of the approved plans for 1988 to the gosplans of the union and autonomous republics and to the planning commissions of krays, oblasts, cities, towns and rayons, and, in the union republics that do not have an oblast division, to the gosplans of these republics and to the city and rayon planning commission, in accordance with the listing established by USSR Gosplan. The appropriate indicators of the indicated plans are also presented to organs of the financing and credit-granting systems in accordance with the list established by USSR Minfin, USSR Gosbank and USSR Stroybank.

#### FOOTNOTE

\*Enterprises that will operate beginning in 1988 under the terms of full cost-accounting and self-financing should be guided when developing draft plans for 1988 by the newly formed stable economic standards and ceilings on state centralized capital investment that were refined in regard to the conversion of enterprises to full cost-accounting and self-financing.

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## ECONOMIST CONCERNED WITH DROPPING FIXED CAPITAL YIELDS

Moscow EKONOMICHESKAYA GAZETA in Russian No 8, Feb 87 p 11

[Article by I. Pogosov, candidate of economic sciences, under the rubric "Investment Complex: Experience, Problems, Solutions": "Efficiency Standards Needed"; first paragraph is EKONOMICHESKAYA GAZETA introduction]

[Text] Today, without a doubt, one of the most important factors in acceleration is the technical-economic level of the means of production, which, in turn, directly influences the efficiency of capital investments for the establishment of production funds.

The lion's share of the increase in production is linked to the activation of new fixed capital. Thus, estimates show that in industry in the years 1976-1980 90 percent of the increase in output was through the introduction of new fixed capital, whereas in the years 1981 through 1985 it was almost the entire increase in output. With such a close relationship, the increase in production is practically entirely determined by the size of capital investments and especially by their efficiency, the technical-economic level and the related yield from new capital investments. And this means that a central place in planning belongs to the indicators of the efficiency of capital investments and to the development and introduction of new techniques and technology to ensure a high level of technical reequipment of operative production systems and new construction.

Meanwhile, the efficiency of accumulation has not been high enough in the last 15 years, which was expressed in the slowing of the rate of increase of production and labor productivity and in a significant decline in the return on investment.

It is precisely for this reason that the difference in labor productivity between the USSR and the United States has remained practically the same during recent five-year plans. Whereas in the 1950's the increase in industrial labor productivity in the USSR exceeded the increase in the United States by a factor of 1.4, this lead was only by a factor of 1.2 in the 1970's and declined to 1.05 in the first half of the 1980's.

The rate of increase of labor productivity can be accelerated substantially under the condition that projects provide for an industry-wide average

increase in labor productivity at new enterprises two and a half to three times above what now prevails.

The 12th Five-Year Plan is called upon to establish the foundation for an increase in the pace of the country's social and economic development during the following decade. In the formation of the national economic proportions, this required that special attention be paid to the capital investments policy. The process of socialist accumulation is materially expressed in the increase in fixed production capital. Under the conditions of intensive development of the economy, there is not only a quantitative increase in the means of labor but an introduction of new machines and mechanisms and more advanced equipment making possible an increase in labor productivity.

The gigantic scale of the production apparatus raises ever more acutely the question of increasing the technical level of fixed capital and production capacities.

The necessity of resolving this problem is also dictated by the increase in the rate of obsolescence of equipment under the conditions of the acceleration of scientific-technical progress and intensive technical reequipment. An improvement in the utilization of fixed industrial-production capital by only 1 percent is equivalent (under 1986 conditions) to an increase in output of 8 billion rubles without additional capital investments or a saving of 7 billion rubles in capital investments.

The level and dynamics of the return on investment are almost entirely determined by the efficiency of scientific-technical progress. This factor must compensate for the increase in capital expenditures in connection with the worsening of the mining and geological conditions for the extraction of raw materials and fuel, with the development of new regions, and with the increased expenditures for environmental protection and the improvement of working conditions.

The decline in the return on investment is linked above all with the increase in specific capital investments and the increase in the capital-output ratio for increased production. This leads to additional capital investments. If in the 11th Five-Year Plan the capital-output ratio for the increase in industrial output had stayed at the level of the previous five-year plan, then to obtain the actually achieved increase one would have needed 46 billion rubles, or 15 percent, less in capital investments.

By maintaining the level of return on investment prevailing in 1980, it would have been possible to obtain more than 130 billion rubles in industrial output more in 1985, whereby the volume of production would have increased by a factor of 1.4 instead of the actual 1.2.

The plan for the 12th Five-Year Plan provides for a number of measures to improve matters in this area. This doubtless will have positive results. The situation remains unfavorable, however. Sound measures are essential to correct the situation.

The planned capacities for the production of output are being assimilated slowly at new enterprises and facilities. The low level of the return on investment, however, is linked not so much with the slow assimilation of planned capacities as with the technical economic parameters incorporated into the plans from the very beginning. In 1985, the return on investment for enterprises and facilities put into operation in the years of the 10th Five-Year Plan was lower than the return on investment for industry as a whole by a factor of 1.2 and for facilities introduced in the 11th Five-Year Plan it was lower by a factor of 1.6.

Calculations show that even if all new enterprises and facilities achieve the level of return on investment foreseen in the plans, the production of output per ruble of fixed capital here will be significantly lower than in industry as a whole. Thus, for enterprises and facilities put into operation in the years 1976 through 1980, the planned level of return on investment is only 78 percent of the level of return on investment of facilities introduced prior to 1976 and it is only 65 percent for those introduced in the years 1981 through 1985.

The low level of return on investment at new enterprises is related to the increase in specific capital investments. Whereas in the years 1976 through 1980 specific capital investments per ruble of increased output amounted to 1.89 rubles, they increased by 18 percent in the 11th Five-Year Plan.

The increase in the value of fixed capital exceeded the increase in production capacities. The capacities in the fuel industry, ferrous metallurgy, and the timber, wood processing and pulp and paper industry increased most slowly in comparison with fixed capital. In the years 1981 through 1985, the value of a unit of introduced capacity increased by 30 percent in coal mining, by 40 percent in the production of prefabricated reinforced concrete structures and products, and by a factor of 1.5 in the production of sewn goods. During this period in agriculture, the value of one introduced cattle site for cattle increased by 20 percent.

The substantial lag of the increase in capacities and labor productivity behind the increase in fixed industrial production capital and in the capital-labor ratio indicates that the increase in the production apparatus and capital-labor ratio were achieved to a significant extent through quantitative and extensive factors and the investment of resources rather than through technical progress. Whereas in the years of the 8th Five-Year Plan an increase in industrial output of 1 million rubles required 640,000 additional rubles in fixed capital, 743,000 and 1.216 million rubles were required in the 9th and 10th five-year plans, respectively, to ensure the same increase in output.

Such a situation with planning is inadmissible. The demands on planning must be made more stringent, having established branch standards for the increase in efficiency in rates ensuring the necessary level of labor productivity, return on investment, and reimbursement of fixed production capital in the national economy as a whole as well as by branches and ministries. Such standards will serve as guidelines in the planning of the most important technical economic indicators of development. It is important in the planning



stage to ensure a reduction of specific capital investments on the basis of the adoption of more thorough engineering and technical decisions, the reduction of the cost of machines and equipment per unit of capacity, and an increase in the share of reconstruction and technical reequipment in the overall increase in capacities. The efforts of the planning organizations of all branches must be oriented to this problem with the goal of reducing the requirements for capital investments.

Research and experimental design work must also be made subordinate to the resolution of this task.

To a considerable extent, the more rapid increase in expenditures for the establishment of fixed production capital in comparison with the increase in production capacities and the production of output is linked with the increase in the cost of equipment. In the 11th and several preceding five-year plans, one observed a more rapid increase in the cost of machinery and equipment in comparison with productivity. The reduction in the return on investment in industry is occurring primarily through the active part of fixed capital.

In design studies and price setting, therefore, it is essential to give more consideration to the technical and economic parameters of new technology, its consumer qualities and the economic effect from its utilization in the national economy and to reduce expenditures per unit of useful work performed by the equipment as well as the cost per unit of productivity of machines and equipment.

The improvement of planning and the consideration of the efficiency of new equipment must provide not only for a comparison of expenditures for new equipment with the results achieved in introducing it but also determine the influence of the new equipment on the basic cost accounting indicators of the work of enterprises and ministries. Such coordination will help to shift to the consideration of the actual rather than the conditional efficiency of new equipment.

Drafts of the plan for scientific-technical development must also include standards for economic efficiency, which determine the limits under which the utilization of resources for the implementation of particular projects is rational and economically justified. In so doing, one should move from indicators of conditional economic effect to real indicators of economic effect in the form of profit and the volume of output produced.

The resolution of the urgent problems of the investment complex presupposes the active utilization of planning instruments. In what way? In our view, it is expedient to separate out in the state plan and the statistical accounting indicators of the efficiency of scientific-technical progress at enterprises and facilities established in new construction and the expansion and reconstruction of production.

This will make it possible to examine the indicators of new enterprises separately rather than in the total of active production and to compare them with the best achievements in the world. Such an approach will permit the formation of plans for new equipment and capital construction as a unit and

will strengthen the progressive orientation of planning and its focus on the creation in the course of capital construction of what is truly the very best that science and technology can offer today. For frequently builders reproduce on a larger scale already existing methods of production, whereby the new facilities do not ensure an increase in the technical level of the produced output.

The separation in the plan estimates of indicators of the efficiency of newly introduced fixed capital is especially urgent under the conditions of the increase in the relative share of expenditures for reconstruction, and especially for technical reequipment, in the total volume of state capital investments and the increase in own funds of enterprises expended for these purposes. In comparison with new construction, expansion and reconstruction in technical reequipment, the average time for the implementation of capital investments is reduced by a factor of two to three, the average duration of the investment cycle is half as long, and specific capital investments are one-fourth to one-half as large. The payback period of capital investments is one-half to two-thirds as long and basically meets the standard.

The separate planning of operational and new production systems is also important in another respect. The establishment of new production capacities must be based either on the inadequacy of existing production capacities or on the economic disadvantageousness of their further utilization because of deterioration or obsolescence. Meanwhile, in practice there are frequent cases of the construction of new capacities while significantly underutilizing operational enterprises.

Capital construction is a basic instrument in the realization of the achievements of technical progress. It must be an organic continuation of the scientific search and applied research so that the planning and construction of new and the expansion and reconstruction of existing enterprises can be accomplished on the basis of highly efficient equipment and technology ensuring the production of output whose technical level and quality meet or exceed the best domestic and foreign models.

9746

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## MORE EFFECTIVE USE OF ENTERPRISE FINANCIAL RESERVE URGED

Moscow EKONOMICHESKAYA GAZETA in Russian No 10, Mar 87 p 17

[Article by V. Ignatushkin, director of the department for the administration of finances and monetary circulation of the USSR Ministry of Finance, and S. Karastelin, chief of the sector for material stimulation of the Financial Research Institute, under the rubric "Cost Accounting and Self-Financing in Enterprise Practice": "Financial Reserves and the Economic Mechanism"]

[Text] The transition to full cost accounting and self-financing and the application of long-term stable economic standards put fundamentally new high demands on the economic work of the branch ministries, one of the main tasks of which is to assist in strengthening the economy of subordinate associations and enterprises.

The fulfillment of this task is closely related to the formation of financial reserve funds. They include: reserves at the ministerial level through the resources of the industry as a whole and an enterprise financial reserve through its profit. All of these funds and reserves are called upon to help in strengthening cost accounting principles in the management of the industry.

With the increase in the means that are left at the disposal of the enterprises, the possibilities for the formation of reserve funds change. In the plan for 1987, 45.4 percent of the total expenditures for financing the national economy are own funds of the associations and enterprises and their share is even higher in a number of industries: 58.4 percent in light industry, 62 percent in the fuel and energy complex, 78.3 percent in machine building and 75.5 percent in transport.

Under these conditions, there is also an increase in the role of reserve funds as a stabilizing factor in the industry economy. In the past, however, the ministries clearly underrated precisely this direction of their utilization, which led to the nonrational redistribution of financial resources within the industry and to the maintenance of poorly operating enterprises at the expense of those that are working well. Resources from reserve (centralized) funds were frequently issued to enterprises unconditionally, on a nonreturnable basis.

Such a situation becomes practically impossible in the transition of ministries, associations and enterprises to full cost accounting and self-financing.

There is also a fundamental change in the system of financial reserves. Now, instead of a multitude of reserves at the level of the ministry (VPO), only three are formed: a centralized fund for the development of production, science and technology; a reserve for an economic incentive fund; and a reserve for a fund for social and cultural measures and housing construction.

This is how the industry system of financial reserves looks under the conditions of full cost accounting and self-financing.

The centralized fund for the development of production, science and technology is formed through allocations to the ministry from the profit of associations and enterprises as well as from the part of the depreciation allocations for the full restoration of fixed capital remaining after posting to the fund for the development of production, science and technology of associations and enterprises under established stable standards.

The reserve for the fund for social and cultural measures and housing construction (up to 15 percent of the planned size of this fund for the ministry as a whole).

The reserve for the economic incentive fund (up to 15 percent of the planned size of this fund for the ministry as a whole).

The financial reserve of the association (enterprise) is established in an amount up to 5 percent of the planned and actual profit applied in accordance with confirmed standards to the formation of the fund for the development of production, science and technology and the fund for social and cultural measures and housing construction.

The concentration of financial resources in the first of these funds significantly expands the possibilities for carrying out an effective and long-term financial and credit policy within the industry aimed at accelerating scientific-technical progress.

Under the conditions of full cost accounting, there is a significant increase in the role of the reserve for the fund for social and cultural measures and housing construction in connection with the five-year task of converting this fund into the main source of financing the construction of nonproduction facilities at enterprises.

This produces definite changes in the priorities for the direction of the expenditure of the monies of the reserve in question. Most significant here are ensuring that the labor collectives doing good work receive more social benefits and the application of additional means to those industry enterprises where the material-technical base for social development lags especially far behind as well as to all production associations and enterprises located in the Far North, Siberia and the Far East.

Under the conditions of full cost accounting, the reserve for the economic incentive fund must be utilized primarily for the purpose of the economic stimulation of labor collectives to accelerate the introduction and increase in the volume of output of new highly efficient equipment and consumer goods.

The situation frequently arises when the economic incentive fund of the ministry turns out to be smaller than the sum of the funds of the subordinate enterprises actually entered for the year. In such cases, the existing system provides for the payment of the excess sum into budget income at the expense of the reserve of the ministry. The transition to the standardized method of distributing profit raised doubts about the expediency of such a direction of the expenditure of the reserve.

The fact is that supplementary (above-plan) allocations to the economic incentive fund of enterprises occur only after covering internal economic expenditures determined by the plan. This guarantees the receipt in the budget of all foreseen payments from enterprises and does not lead to a reduction of the disposable remainder of profit and accordingly of allocations to the budget.

As for the financial reserve of the associations and enterprises themselves that are transferred to full cost accounting, it now depends upon the profit applied in accordance with confirmed standards to the formation of the fund for the development of production, science and technology and the fund for social and cultural measures and housing construction (previously it was established as a percent of the standard for own working capital). Now (which is very important) this reserve is established in the financial plan (formerly it was formed only during the course of the year).

In those cases when allocations to the economic incentive fund decline because of the nonfulfillment during the year of the targets for the increase in the production of consumer goods per ruble of the wage fund, provision is made for a corresponding increase in the financial reserve of the enterprise. The funds of this reserve can be used for additional expenditures to expand production, for the development and introduction of new equipment, and for other expenditures connected with production and nonproduction construction.

Still unresolved is the problem of the determination of the economically valid magnitudes of financial reserves. The fact is that most ministries are forming their own reserves in small amounts (much lower than the admissible level). In 1985, for example, the reserve for the fund for social and cultural measures and housing construction with a maximum allowable level of centralization of 15 percent amounted to only 7.8 percent in the Ministry of Nonferrous Metallurgy, 6.3 percent in the Ministry of Tractor and Agricultural Machine Building, and 4.6 percent in the Ministry of the Machine Tool and Tool Building Industry. This, of course, lowers the efficiency of the performance of the functions assigned to the given function.

Under the conditions of full cost accounting, when the economic stimulation funds act as main sources of financing, the size of the reserves must be foreseen in the financial plan at the maximum possible level (15 percent of the overall magnitude of the fund for the ministry as a whole, just as this is

provided for in the Standard Position). Only in this case will they be able to fulfill the tasks assigned to them efficiently.

The policy of ministries in establishing standards for allocations to the financial reserve funds from the profit of subordinate associations (enterprises) must become substantially more flexible under the conditions of full cost accounting. Here, clearly, a differentiated approach is needed. Thus, for enterprises carrying on reconstruction under the conditions of active production, one could establish standards for allocations to the corresponding ministry reserve at a lower level in comparison with their possibilities. An analogous approach can also be applied in determining the allocations to other reserves (centralized funds) of the ministry (VPO).

Additional above-plan enterprise obligations for increasing the volume of production and labor productivity must, of course, be an indispensable condition for such differentiation of standards. And, naturally, if the enterprise fails to fulfill the supplementary obligations that it accepts, it must reimburse the ministry the corresponding share of the profit. In such an approach, it is possible to combine the interests of the ministry and enterprise in production and social development as early as the stage of the financial plan.

It is extremely important for the standards for the allocations to the financial reserves to be determined for subordinate associations and enterprises not in an absolute sum but as a percentage of profit. This will ensure inflow into reserve funds from all supplemental profit not considered by the financial plan.

Today, as a rule, the allocation of monies to the enterprises from reserve funds is not dependent upon any guarantees. Under full cost accounting, self-financing and self-supporting production, such a position becomes inadmissible. It is expedient to issue monies to the enterprises from reserve and centralized funds for their guaranteed obligations on a reimbursable basis. Such obligations could include the issue of new equipment in physical terms with a breakdown by periods (month, quarter) and the increase in labor productivity (broken down by periods).

It is expedient to permit the ministries working under the conditions of full cost accounting to channel resources of the reserve for the economic incentive fund to the reserve for the fund for social and cultural measures and housing construction. An analogous system is being applied in relation to the funds in question at the level of production associations and enterprises.

Finally, it is now essential to formulate an estimate of the expenditure of reserve funds, which will make it possible on the basis of its analysis to determine the efficiency of the utilization of capital both during the year as well as in its summary.

The fewer unprofitable enterprises there are in the ministry and the better financial discipline is observed, the higher will be the efficiency of the action of the system of financial resources on the industry economy.

For industries working under full cost accounting. it is becoming an unwarranted waste and even an unbearable burden to maintain unprofitable enterprises, which in 1985 amounted to more than 13 percent of the enterprises in industry.

The existence of planned unprofitable enterprises produces undesirable adjustments in the choice of the priority directions in the utilization of reserve and centralized funds. The resolution of this problem will be aided, in the first place, by the system introduced in 1987 of financing planned unprofitable enterprises at the expense of the industry under lowered standards. Secondly, it is important to include planned unprofitable and low-profit enterprises in large production and scientific-production associations.

The realization of such directions will make it possible to resolve successfully the task set at the 6th Session of the 11th Convocation of the USSR Supreme Soviet of eliminating losses in most industries before the end of this five-year plan.

The practice of forming and utilizing the financial reserve of enterprises is also in need of improvement. Thus, it is expedient to establish firm allocations to the financial reserve from supplemental profit through stimulatory price markups in the amount of 5 to 10 percent of actual receipts (with a corresponding reduction in the sums going to the economic stimulation funds).

Clearly, it also makes sense to issue monies in a number of directions of the expenditure of the financial reserve to production units and shops under definite guaranteed obligations on their part.

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ECONOMIST CALLS FOR CREDIT REFORMS

Moscow EKONOMICHESKAYA GAZETA in Russian No 16, Apr 87 p 6

[Article by V. Rybin, doctor of economics sciences: "Monetary Circulation and Credit"; capitalized passages printed in boldface; first paragraph is source introduction]

[Text] We discuss the draft of a USSR law on state enterprises and associations.

Monetary circulation is a fairly precise indicator of economic processes.

Its status reflects the success rate in the functioning of commodity and monetary ratios and their capability to create those management conditions under which the results of a collective's work depend absolutely upon its quality and efficiency.

Monetary circulation is unified in its nature, although it also consists of two parts--the cash and the book-entry parts. Book-entry circulation predominates: it constitutes 90 percent of the total turnover.

I would say that credit is first among the regulators of monetary circulation. This is determined, first, by its very nature and specific function, which consist in the issuance of banknotes. Second, by the place of credit in the reproduction system, since credit resources mediate the movement of social output. Third, credit plays a leading role among the sources for creating working capital (more than 57 percent for the national economy as a whole, 51 percent for industry). Fourth, it is important that credit be the source for the forming of working capital and, in part, of fixed capital after funds have already been obtained through other channels. Credit also plays a substantial role in the creation and utilization of funds intended for satisfying social requirements.

The status of monetary circulation depends upon the effectiveness of use of finances--the budgetary funds and the in-house means of enterprises.

During the 1970's and the first half of the 1980's, the role of credit as the basic source of monetary means was not adequately considered. The great increase in loans that were not well secured, or that were overdue or were extended was one of the causes of the economically unjustified increase in



banknotes in circulation. Banking organizations often unjustifiably eased the terms for granting credit, which also led to an expansion of monetary-circulation channels.

Credit, as a result, began to lose its function of the granting of loans to cost-accounting elements for a definite period in order to satisfy temporarily their need for funds. Credit resources replaced the enterprises' in-house means and were even used indirectly to augment budgetary receipts. Disproportions in the movement of credit resources and aggregate social output developed. Balances of loans rose 4.1-fold from 1970 through 1985 while gross social output increased only 1.98-fold; in industry, balances of short-term loans increased 3.1-fold while production volume rose 2.14-fold. "Credit has lost its original purpose," the Political Report of the CPSU Central Committee to the 27th Party Congress noted.

Enterprises and associations "found" in credit that is not linked with the true results of management a financing source that replenished funds which frequently had been spent in vain. Where were the credit resources derived from? An analysis indicates that an accelerated increase in deposits in savings banks, or that portion of them that characterizes postponed current purchasing demand, enabled an unjustified increase in credit resources. The deposits were counted completely as resources for granting credits, which thus served as a formal basis for unlimited growth of credit outlays.

Monetary circulation WAS ADVERSELY AFFECTED IN SOME SECTORS BY THE SYSTEMATIC SURPASSING OF RATES OF WAGE INCREASES OVER RATES OF LABOR-PRODUCTIVITY GROWTH PLUS THE PRESENCE OF ABOVE-NORMAL RESERVES OF MATERIAL VALUABLES.

In order to provide for stable monetary circulation and a strengthening of the purchasing power of money and of its active use in economic and social policy, it was important to bring the country's monetary circulation into correspondence with the objective requirements of reproduction, which is proceeding on an increasingly intensive basis. IT WAS DESIRABLE TO ORGANIZE THE PLANNING OF ALL MONETARY CIRCULATION, DISTINGUISHING BETWEEN CASH CIRCULATION AND BOOK-ENTRY CIRCULATION, IN THE STATE PLAN FOR THE ECONOMIC AND SOCIAL DEVELOPMENT OF THE COUNTRY AND ITS MAJOR REGIONS. Appropriate suggestions about a methodology for calculating the value of book-entry banknotes were worked out by the country's scientists and practical experts. Obviously, this question needs additional development, taking the new management conditions into account. Only cash circulation is being planned as yet; this reduces the degree of balance of in-kind and cost proportions during plan development and implementation.

The banking system has already intensified the requirements for observance of the principles of credit (reimbursability, urgency, the provisioning of material security, the specific nature, differentiation, and the interest charge) and for a resources-conserving orientation of the credit policy. However, much remains to be done if the rate of increase in credit is not to exceed the rates of growth of the aggregate social product (and during the current five-year plan it should even be considerably lower, in order to eliminate a surplus of banknotes).

In our opinion, accounting for resources for granting credit and for the country's loan fund must be changed. It is necessary to include only

materially secured means AND TO REFRAIN FROM ACCOUNTING FOR THAT PORTION OF THE PEOPLE'S DEPOSITS THAT REPRESENTS POSTPONED CURRENT DEMAND.

Finally, it is important to determine the possibility, based upon the standards, of using each financing source--the budget, the in-house funds of enterprises and branches, and credit--for simple and expanded reproduction at the level of cost-accounting elements, branches and regions. These standards should provide for a resource-saving trend in the development of production and they should be oriented to an increase in effectiveness, to the technical reequipping of production, to the conduct of measures for achieving the world's highest level of output produced, and to an intensification of the output's competitiveness.

The value of cost-accounting methods for creating sources of capital investment and for using in-house funds and long-term credit for these purposes does not raise doubts by anyone. But the share of long-term credit in sources for financing capital investment is 5-6 percent. And although the share of in-house resources exceeds 50 percent, this did not, until recently, characterize the development of cost-accounting relationships. For such resources often were not earned by the enterprises (or associations) that used them, and they appeared in the total of the redistribution of resources within the branch. With the transfer of enterprises to the new management terms, especially for self-financing (with the use also of credit), a procedure was introduced which to a great extent bans the redistribution of funds for capital investment among cost-accountable elements within branches.

All this will enable planned proportions in the use of money and credit to be determined with precision and, to a great extent, to be provided for.

It would also seem to be desirable to discuss measures aimed at use of the country's monetary circulation and of credit for implementing an active social policy. For these purposes, it is important to enlist all the resources, including local ones, that can be found, and also, with the help of financing and banking organs, to promote the necessary correspondence of workers' earnings and commodity resources, and of the monetary incomes of enterprises and the material valuables that they need.

It is necessary to attract banking institutions out in the field to the planning of credit (and the preparation of credit statements) for enterprises and associations. The banks will be able to influence meaningfully the development of substantiated engineering, production and financial plans aimed at intensifying the economy. We are talking about what is to be done in order to unite production, financial and credit planning at the center and out in the field. In our opinion, the following rules can hold true here.

First, if an enterprise plans to take steps to raise production effectiveness and output quality and to satisfy the customers' requirements, then the bank should grant all the needed credits responsively.

Second, if such steps are not planned, then the bank, as an economic partner of the enterprise, should initially inform the labor collective about this and then introduce economic restrictions on the granting of credit for current operations in order to persuade the enterprise to improve its work.

The bank's information about the results of the credits and settlements servicing of an activity will enable the state of affairs to be known well, the necessary economic measures to be taken responsively, and the activity of interested institutions to be coordinated. But this information still is not being systematically processed for these purposes.

Finally, the active stimulation of the operation of granting credits to enterprises that operate well, which until recently actually was lacking, is necessary. It is desirable to call for a potential for granting favorable credits responsively (since the end of 1986 the charge can be reduced by as much as 50 percent of its amount) for the necessary measures, including social orientation, and to authorize enterprises to earmark the funds obtained from savings on interest for an increase in economic incentive funds.

The universal use of a differentiated credit-granting operation is a guarantee of the successful conduct of a scientifically substantiated policy also in the area of monetary circulation. Under these circumstances, credit will, in the final analysis, support an acceleration of the reproduction process and realization of the concept of an acceleration of the country's social and economic development.

Therefore, it is desirable to insert into the draft of the law, at the start of Article 218, "Credit and Settlements": "1. THE ENTERPRISE HAS, IN THE FORM OF BANKS, ECONOMIC PARTNERS (WHICH ENJOY EQUAL RIGHTS) IN ITS PRODUCTION AND SOCIAL ACTIVITY, WHICH, BY ECONOMIC MEANS (CREDIT AND INTEREST), STIMULATE DURING PLAN DEVELOPMENT AND REALIZATION INCREASED PRODUCTION EFFECTIVENESS, SCIENTIFIC AND TECHNICAL PROGRESS, CONSERVATION OF RESOURCES, A RISE IN THE QUALITY OF THE OUTPUT PRODUCED, AND SATISFACTION OF THE SOCIAL REQUIREMENTS OF LABOR COLLECTIVES. IN RELATION TO THE ENTERPRISE, THE BANKS, WHILE GRANTING CREDITS AND EFFECTING SETTLEMENTS, BECOME STATE CONTROLLERS OF THE TIMELY SATISFACTION OF THE SUBSTANTIATED REQUIREMENTS OF CUSTOMERS AND BECOME ORGANIZERS OF THE ECONOMIC METHOD OF CONTROL WHO ACTIVELY PROMOTE OBSERVANCE OF THE PRINCIPLES OF COST ACCOUNTING, SELF-FINANCING AND SELF-ADMINISTRATION. A DIFFERENTIATED PROCEDURE FOR GRANTING CREDIT, WHICH INCLUDES A COMPLEX OF ECONOMIC ADVANTAGES AND PENALTIES, IS ACTIVELY USED BY THE BANKS IN THE ECONOMIC METHODS FOR CONTROLLING ENTERPRISES."

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## HAYCUTTING, FEED PROCUREMENT READINESS REVIEWED

Moscow SELSKAYA ZHIZN in Russian 24 Apr 87 p 1

[Editorial: "Those Who Sow In Time Will Not Have To Request Feed"]

[Text] What more can be said on the eve of the haying period? As a rule, a statement could be made regarding when to start the mowing. Today it is hardly likely that one could find an agronomist who is not familiar with the amount of protein that can be obtained from grass harvested at the moment of heading or budding and how much less is obtained a week or two following blossoming. The question as to the best haying periods is indeed a very important one.

Surprisingly enough, it is difficult to recall a time when the haying work was started on time. Not to mention those few times when it was completed on schedule. In a majority of the regions, the months of May and June are used for "adjusting" and for "explanatory-mobilization" work. And in August, on farms in Novgorod and Yaroslavl oblasts, wet cuttings of clover that have turned black as coal as a result of frequent rainfall are gleaned from the ground. The Tselinograd machine operators are cutting down crested wheat grass and brome grass that has dried out to the point where it can be arranged in stacks immediately after the mower has passed. A second cutting is even being obtained from irrigated alfalfa fields in Uzbekistan.

There are exceptions to almost every rule. And there are some here. For example, from year to year the kolkhozes and sovkhozes in Lithuania and Belorussia are completing their hay procurement work ahead of farms in the TsChO [Central Black Earth Region], which are located much further south. What does this indicate? It indicates either that the Lithuanian and Belorussian feed procurement workers are organizing their work in an exemplary manner or that their Kursk and Tambov colleagues are setting examples of unacceptable sluggishness and disorganization.

If we analyze the situation with the same strictness that is required today, then it would be well to acknowledge still a second factor. The same criteria should be employed when analyzing the overall status of affairs in feed production. Yes, in recent years the country's kolkhozes and sovkhozes have begun procuring more feed than has been the case in past years. And this has had a noticeable effect on the productivity of the farms. Over the past 4

years, the livestock and poultry procurements increased by 14.3 percent, milk -- by 13.2 and eggs -- by 11.2 percent. The production and procurements of these products are continuing to increase.

But at the present time, with the late spring having unexpectedly prolonged the wintering campaign, the livestock breeders are once again convinced that the 16-17 quintals of feed units placed in storage per standard head of livestock do not provide a very reliable guarantee against the vicissitudes of the climate. With such a forage reserve, any untoward eventuality is capable of effectively derailing animal husbandry operations from its track. And the difficulties involved in regaining lost ground and recovering expenditures are well known.

In short, the impending "green harvest" work must be carried out in a considerably more organized manner than has been the case in past years. This is not just a cheerful slogan, but rather it is a requirement that is materially reinforced by tens of thousands of machines that have been added to the kolkhoz and sovkhoz technical pools for the winter operations.

Time is a decisive factor during the haying period. This year, judging from all indicators, it would appear that there will be less time than was the case last year. And eventually the habit that has developed in the psychology of the leaders and specialists of waiting "until the grass has acquired bulk" must be terminated. Practical experience has repeatedly proven that those who prefer to wait do not gain but rather they lose and particularly from the standpoint of the amount of feed procured, since they lose out on the possibility of obtaining two cuttings instead of just one.

During experiments carried out by workers at the All-Union Scientific Research Institute of Feed, the conversion over to three cuttings of clover instead of the usual two cuttings made it possible to obtain additionally up to 350 feed units and 190 kilograms of protein per hectare. In the case of alfalfa, the increase amounted to 230 feed units and 270 kilograms respectively. Conditions are available in a majority of the rayons in the forest-steppe district and on many farms in the steppe and even the forest zones for obtaining three cuttings of sown grasses under non-irrigated conditions. Large amounts of feed are lost on those occasions when the kolkhozes and sovkhozes are unable to obtain even two rich cuttings!

The irrigated lands in the Central Asian republics are capable of furnishing up to six yields per season. Meanwhile, the authorities here are satisfied with obtaining three cuttings and the hay is not of the best quality. Perhaps the time is at hand for publicizing basic knowledge on when the grass contains the most protein and why it is needed. Should not each leader and specialist be aware that if he overlooks the best period for harvesting the grass he forfeits any right to complain regarding a shortage of concentrates or to request the state to supply protein feed additives? Those who mow well will not have to request feed.

Unfortunately, it still is not apparent exactly how well the kolkhozes and sovkhozes have prepared for the next haying season and yet in a number of southern regions the mowing machines have been moved out onto the fields. This

is evident based upon the condition of the feed procurement equipment. On farms in the RSFSR, one fourth of the tractor mowers, more than 20 percent of the pick-up balers and 30 percent of the self-propelled feed harvesting machines have not been prepared for operations. The fact that the republic's machine operators are restoring a number of feed procurement machines for operations much more slowly than they did one year ago is especially alarming.

In glancing at a summary report provided by the TsSU [Central Statistical Administration], it is difficult to determine which oblast will commence its haymaking work first -- Astrakhan or Leningrad, Volgograd or Arkhangelsk. From a geographical standpoint, those which are located further south should be the first to start this work. This being the case, it is difficult to understand why the lower Volga oblasts are repairing their haymaking equipment much more slowly than their neighbors to the north.

I cannot recall when it last happened that the farms in Kazakhstan commenced their "green harvest" with their machines in a state of 100 percent readiness. Again this year, they appear to be in no hurry. And if they do not display some haste during the time remaining, once again the first cutting will be delayed until September.

In June of last year, SELSKAYA ZHIZN sharply criticized the organization of feed production in the Turkmen SSR. With large fields of irrigated land at their disposal and the southern sun overhead, the farms here should have ample amounts of feed available. However, many of them appeared unwilling to carry out forage work. The Editorial Board is still awaiting a response to its article. One can easily understand why the Turkmen comrades have yet to respond. The time is actually at hand for them to commence their haymaking work and it turns out that 30 percent of their feed procurement equipment is not ready for operations.

Nor is very much time remaining before the start of the grass harvesting work in other regions. During the remaining weeks, all of the necessary measures must be taken to ensure that the feed harvesting machines are properly adjusted and the transport vehicles made ready for the work. This task must be carried out by both the rural machine operators and the repair workers. It must also be the object of attention by enterprises of Mintraktorselkhoz mash [Ministry of Tractor and Agricultural Machine Building], Minzhivmash [Ministry of Machine Building for Animal Husbandry and Fodder Production] and Minavtoprom [Ministry of the Automotive Industry]. Just as in the past, they are not carrying out the tasks concerned with deliveries of spare parts.

KSK-100 feed harvesting machine being produced by the Gomselmash plant is receiving a great amount of criticism. The plant is aware of this fact and must understand that not all of its machines are distinguished by a high degree of reliability and that concern must be displayed for ensuring adequate production of spare parts for them. However, judging by the fact that the enterprise is fulfilling its plan for the production of spare parts, it would appear that this is not a serious concern of the collective. Nor is this considered to be an obligation for the Lyubertsy Plant imeni Ukhtomskiy, the

Frunze Plant for Agricultural Machine Building or a number of other enterprises with regard to kolkhozes, sovkhoses and the repair enterprises of agroprom.

Prior to the commencement of the haying period, diligent work must be carried out by the builders engaged in erecting feed storehouses. As yet, less than one-fourth of the feed that we have procured is being stored indoors. The remainder is wintering outdoors. This is causing the kolkhozes and sovkhoses to suffer large feed losses. Meanwhile, the hay storage facilities require not only reliable roofs. The specialists are aware that even in regions marked by hot and dry summers, the preparation of good hay based only upon natural drying can be extremely complicated. This is especially true if the hay contains leguminous grasses. When they rely entirely upon the sun, the feed procurement specialists often leave the most valuable portion of a crop out on the field, as they place coarse and not very edible stalks in a stack.

Having elected to build hay storehouses in a business-like manner, the kolkhozes and sovkhoses of Belorussia, the Baltic republics, the Tatar ASSR and Dnepropetrovsk and Odessa oblasts are now able to dry out their grasses indoors using the method of forced ventilation. Here they became convinced with their own eyes: the new technology is more suitable in all respects than the traditional method. The agroprom leaders in Saratov and Kursk oblasts, Stavropol Kray, the Kalmyk ASSR and in Azerbaijan and Moldavia should also become fully convinced in this regard. But for some unknown reason, they are requiring more time than the others. In any event, there is sufficient hay storage space for only 1.5-14 percent.

The feed procurement specialists are seriously disturbed over the sluggish nature of this year's spring period. Preparations must be made for the fact that the grasses are delayed in their growth. In such a situation, a greater role must be played by the party committees in carrying out their organizational and political work and the agroprom organs must carry out their tasks more efficiently. Poor work is performed by that leader who neglects the slightest opportunity to increase his feed yield or improve its quality. It was noted long ago -- a busy summer results in a calm winter.

7026

CSO: 1824/248

## RSFSR PREPARATIONS FOR 1987 SEASON

## Humus Deficit Analyzed

Moscow SOVETSKAYA ROSSIYA in Russian 25 Feb 87 p 1

[Commentary by the staff members of the RSFSR Gosagroprom under the "Commentary on the Figure" rubric: "The Response Will Be the Harvest"; first paragraph is SOVETSKAYA ROSSIYA introduction]

[Text] In the last 25 years. the humus content in the fields of Russia has declined by 25 to 30 percent. Every year, then, the productive force of the land in the republic declines by 1 percent.

Considerable efforts are now being made to stop this process. They give hope. By the beginning of this year, 18 oblasts, krays and autonomous republics had achieved a self-supporting balance of humus in the soil; the annual losses of humus there are compensated through the application of organic fertilizers to the fields.

Take, for example Kolkhoz imeni Kuybyshev in Gorodetskiy Rayon of Gorkiy Oblast. On this farm, not a single ton of manure is wasted. Special areas have been set up around the animal-husbandry sections for the preparation of organic-mineral compost. They mix the manure with peat, simultaneously adding essential minerals. The result is a complex and very valuable fertilizer that enriches the soil and also improves its structure. This makes it possible to obtain good harvests of agricultural crops on relatively poor lands. Last year at the kolkhoz, they harvested 44.5 quintals of grain per hectare and 298 quintals of potatoes.

Unfortunately, the overall picture is still somewhat different. The calculations of scientists and specialists show that to stop the loss of humus in the soil completely it is necessary to apply 847.1 million tons of organic fertilizers to the fields annually, or 6.5 tons per hectare of arable land.

The republic's farms actually applied only 504 million tons to the soil last year, that is, 3.8 tons per hectare. The plan for the procurement and application of organic fertilizers in Vologda, Novgorod, Pskov, Ivanov, Kaluga, Smolensk, Kirov, Voronezh and Volgograd oblasts--precisely where the



fertility of the land is declining especially noticeably--was fulfilled by only 60 to 80 percent.

References to objective reasons preventing the acceleration of the work in the preparation and application of compost are groundless. More special machinery than ever before is now concentrated on the farms. In a number of places, however, they were not able to utilize it effectively. Little attention was paid to the construction of shops and areas for the industrial production of compost. The current five-year plan, however, provides for a significant increase in the number of fertilizer "factories." To correct the situation, it is essential to involve the partners in the agro-industrial complex in the construction of manure depots.

The situation is aggravated by the fact that a significant part of organic fertilizers is not being used efficiently. Thus, more than 50 percent of the fertilizer is applied to the soil in the spring and only 30 percent on fallow fields. Sixty percent of the manure, or 280 million tons, is applied in a pure form but it is most effective in compost. They put 20 million tons of peat on the fields in the same manner. This amounts to one-fourth of its entire mass. Heretofore they have been pushing about 100 million tons of organic fertilizers around the fields with bulldozers, drag harrows and other devices. It is simpler that way, of course, but not good for the harvest. Meanwhile, there are special spreaders but they often stand idle.

The good in the experience of advanced farms is still being disseminated slowly. At a number of kolkhozes and sovkhozes in Arkhangelsk, Vologda and Vladimir oblasts, they have constructed shops and special areas for the industrial production of compost based on peat, lignin, bark and sawdust. At the Tomilinskaya Poultry Factory in Moscow Oblast and the Tutayevskaya Poultry Factory in Yaroslavl Oblast, they are making extensive use of bird droppings for the preparation of compost. In recent years, the farmers of Krasnodar Kray have been plowing part of the straw from grain crops into the ground at the time of the fall cultivation of the soil. In so doing, 1 ton of straw takes the place of 4 tons of rotted manure. These are still isolated examples. Tremendous quantities of organic fertilizers are being lost, polluting the environment. What can and must be a benefit causes harm.

We will make special mention of organic mud. It is being used in insignificant amounts only in Tambov, Yaroslavl, Pskov, Moscow, Gorkiy and Tyumen oblasts. Meanwhile, the data from a geological survey in 12 oblasts show that its supplies are sufficient for large-scale industrial extraction. As yet they have not begun this work in a single one of these oblasts.

#### Machinery Readiness Examined

Moscow SOVETSKAYA ROSSIYA in Russian 17 Apr 87 p 1

[Commentary by the RSFSR Gosagroprom under the "Commentary on the Figure" rubric: "Machinery Tied Down"; first paragraph is SOVETSKAYA ROSSIYA introduction]

[Text] At kolkhozes and sovkhoses, according to the latest data, 90 percent of tractors, 97 to 99 percent of sowing and cultivating machines. 83 percent of grain harvesting machines and 66 to 70 percent of special combines are ready for work.

Let us note right away that most of the machines that will be utilized in spring field work are no less ready than in the previous year. It would seem that one could take it easy but there are reasons for concern and they are serious.

The target for having tractors ready for sowing was not fulfilled by the Leningrad, Ryazan, Yaroslavl, Kursk, Rostov, Kurgan and Kalmytskiy agroproms. Dispersers of mineral fertilizers, machines for the application of organic fertilizers and tractor trailers will begin spring work and there will be a need for seed-treating machines but the number of defective machines is still high at the kolkhozes and sovkhoses of Rostov, Volgograd, Astrakhan, Kursk, Orel, Ryazan, Kurgan, Omsk and Amursk oblasts, Stavropol Kray, and Dagestanskaya and Kalmytskaya ASSR's. The farms of North Caucasian Rayon were supposed to complete the work in preparing silage-harvesting and fodder-procurement machines before the beginning of field work. This was determined in the work plans. But one-fourth of the machines are still defective. The situation in Rostov Oblast and Stavropol Kray was worse than elsewhere.

Why did this happen? The results of the fall and winter repairs show that the kolkhozes and sovkhoses overestimated their strengths, deciding to repair equipment through their own efforts, and the engineering services of the rayon agro-industrial associations did not give a fundamental evaluation of their actions and did not check the real possibilities of the farms, including the existence of production areas, equipment and repair workers.

Gosagroprom has broken down administrative barriers but not all managers yet understand that the production capacities of the repair and technical enterprises must be utilized at maximum efficiency. And if they are not fully loaded, the losses are also on the shoulders of kolkhozes and sovkhoses. Many managers claim that they repair equipment more cheaply. This is far from the case. An analysis of annual reports showed that most kolkhozes and sovkhoses lack the proper accounting for expenditures, for it is performed incorrectly.

Practice shows that where cost accounting is being introduced in all links of the engineering service and where they are beginning to consider expenditures by elements, their sum increases.

Spring is well under way. The engineering services face large and complex tasks. The main task is the organization of the highly productive utilization of machinery in the fields and the technical provision of the uninterrupted work of the sowing machines.

97467

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## INTENSIVE TECHNOLOGY DEFINED, IMPACT ASSESSED

Moscow IZVESTIYA in Russian 29 Jan 87 p 2

[Article by O. Pavlov under the "Agricultural Review" rubric: "Intensive Field"]

[Text] Is it not too early to say what we can get from intensive technology on grain and other fields this year? No, it is not too early, for everything is being prepared now, in winter, for the successful application of this technology. IZVESTIYA has already written about the essence of intensive technology. But readers continue to ask what this is. I will say it once more: it is giving the plants the most favorable conditions for the formation of the harvest. This includes the timely and detailed application--preferably through ground means--of fertilizers in the necessary combination, the protection of plants against diseases and pests, and the application of growth stimulants. That is, not simply sow and then harvest but cultivate, taking into account the weather and other circumstances, and then harvest with skill.

At the conference in the CPSU Central Committee on 23 January, where it was a matter of the necessity of raising labor productivity in agriculture on the basis of the introduction of rational forms of labor and cost accounting, there was also talk of the great importance of assimilating intensive technology.

The data on the fields of the RSFSR, where we have the largest tillable area, indicate what intensive technology provides and can provide. Thus, grain crops were intensively cultivated on 16.7 million hectares in the republic. The year, as you know, if not one of the worse in terms of weather, was still not an easy one.

An average of 24.9 quintals of grain per hectare were obtained from the intensive fields of the republic, 9.4 quintals more than with customary technology. This is an additional 13.49 million tons of grain. Another thing is its quality. Here there has been a clear change for the better. The state received 4.992 million tons of strong wheat--178 percent of plan--7.885 million tons of value wheat, and 957.000 tons of hard (class) wheat. A total of 13.834 million tons of high-quality wheat was sold, more than half the total volume of its procurements.

Intensive technology was applied on 20 percent of the grain area but these fields yielded more than one-third of the gross harvest of grain in the republic.

The best results from the introduction of the new were in Stavropol and Krasnodar krais, Rostov, Kuybyshev, Ulyanovsk and Orenburg oblasts, and Bashkirskaya and Kabardino-Balkarskaya ASSR's.

For the 1986 harvest in Stavropol Kray, there were 900,000 hectares in winter sown crops under intensive technology, including 338,000 hectare with a technological track. They retained 880,000 and 330,000 hectares, respectively, or 98 percent, for harvesting. This is the best indicator in the republic. What is a track? It is an unsown strip as wide as the wheels of the tractor carrying the mechanisms for the application of plant protection agents, growth regulators and liquid fertilizers. It is the most efficient method. Strictly speaking, this is a scheme for intensive technology in its optimum variant. It is not possible for everyone to assimilate it at all times for a number of reasons. It is probably not always necessary either. But let us turn to the example of that same Stavropol area.

The kray's average harvest of winter sown crops where sown intensively was 37.3 quintals per hectare with the track and 27.6 quintals without the track. Under customary technology, it is 21 quintals. Also not bad. But the increase from the "intensive method" is 16.3 and 6.6 quintals, respectively.

Also important, of course, is the economic efficiency. For the kray as a whole, each intensive hectare yielded 144 rubles of net income and the entire area yielded 130 million rubles.

Zavety Ilyicha Kolkhoz in Lipetskiy Rayon of Lipetsk Oblast obtains good harvests every year from intensive fields of winter sown crops: 55 quintals in 1985 and 53.8 quintals last year, a very dry year.

Also important is the fact that the winter sown crops did not perish on a single hectare at this farm last year. Here they assign particular importance to the care of fallow fields, to the selection of the best predecessors, to the timely diagnosis of plants, to their supplementary feeding, and to the observance of an entire complex of measures foreseen by the technology.

Not everything is so simple and successful, however. At Yeletskaia Experimental Station in the same oblast, for example, they harvested 31 quintals of grain per hectare from intensive fields of winter sown crops that same year, or less than at the kolkhoz by a factor of 1.7. The reasons: they do not utilize the technological track here, they were late in carrying out protective measures, and their work with fallow land is poor. And that was also one of the reasons why on 500 hectares the winter sown crops did not tolerate the cold and perished.

What do these examples say? They say, above all, that the "intensive method" works fully when all of its demands are observed. These demands, let us say it plainly, are high--on the agronomist, on the engineer and on the machine operator. In addition, it requires higher expenditures, which easily pay for

themselves if the work is done properly but are fraught with losses is it is careless. Unfortunately, some specialists have been of the opinion that the main thing in the "intensive method" is to apply more fertilizer, inasmuch as that is why it is provided. The result was that they either overfed the plants or fertilized them in the wrong proportions: they did not grow as much in the ears as in the stems and the grain lay down. It appears that this year's winter course of study in the agricultural industry will compensate for the shortage of knowledge of specialists and machine operators.

But not everything depends upon them. Even if you are very competent and conscientious, there is not a whole lot that you can achieve without the necessary equipment. For intensive technology requires an increase in the number of operations in the fields and new machines, naturally. But there clearly are not enough of them. The Ministry of Tractor and Agricultural Machine Building is slow to get going. The worst bottleneck is machinery for plant protection. The design task is not all that complex. Ordinary engineers on the basis of the enterprises of the former Selkhoztekhnika are resolving it. But all of this is somewhat spontaneous and, in addition, is not supported by physical resources. And the powerful ministry is somewhere off to the side.

The chemical industry workers delivered their output unevenly last year. It would seem that all fertilizers were shipped but not at the proper time and not in the right products assortment.

Spring is not far off. And one would like to hope that the intensive field will be provided for in an optimum manner by the beginning of the field work. The interests of the food business in the country earnestly require this.

9746

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## FLEXIBLE, INNOVATIVE TECHNOLOGY URGED

Moscow SELSKAYA ZHIZN in Russian 27 Feb 87 p 1

[Article by I. Shatilov, member of the All-Union Academy of Agricultural Sciences: "The Situation Dictates the Tactics"]

[Text] High Readiness for Spring Work!

The country's farmers are striving to reach a higher level in the yield of agricultural crops and in the gross harvests of all products in field cultivation this year. And, of course, the agronomists play a leading role in this. It is precisely they who are called upon to know in detail the existing situation in the fields, to evaluate it properly, and to make the one correct decision: what, when and how to act so that they yield the planned harvest without fail. This matter, of course, is not simple. But it is necessary. And there must be no cliches here.

It is well known that the agronomist always has a lot to do, especially in the spring. Much has to be considered. But his primary concern is the accumulation of moisture in the soil. In many places, as you know, the fall of last year had a large deficit of precipitation, especially in the steppe and dry-steppe regions. The supply of moisture in the soil turned out to be considerably below the annual average over many years but a rather good snow cover, some 20 centimeters or more, formed over the winter in most regions, including in the steppe regions. There are about 600 tons of water per hectare in such a layer of snow. If measures are not taken to conserve it, the entire huge mass of melted snow will go into the gullies and rivers, especially since the soil has frozen to a considerable depth in many places.

What can be done to reduce the surface run-off of melt water from the fields? As experience shows, the most practicable and efficient means is the strip rolling of the snow crust. I emphasize, of the crust, that is, at the time when the upper layer of snow begins to melt and becomes sticky. The correct strip rolling (without fail across the slopes) delays the disappearance of the snow by 3 to 5 days and helps in the absorption of a significant amount of moisture from the snow. The distance between the compacted strips of snow needs to be twice the width of the roller. If one can retain even half of the snow moisture on the fields, the soil will receive approximately an additional 300 tons per hectare. Such a quantity is enough to produce an additional

grain harvest of 3.5 to 4 quintals per hectare. It seems to me that agronomists must not and simply do not have the right to neglect such a possibility and not utilize this important reserve for increasing fertility.

And one other very important matter for agronomists. Now, as you know, is the time for study in the rural areas. People are striving to assimilate the scientific and technical bases of intensive technologies as well as experience in applying them. And here the role of the workers in the agricultural service as well as of other specialists of kolkhozes, sovkhoses and RAPO's [rayon agro-industrial associations] is very great. In particular, it would be useful even before going out in the fields to organize in agro-industrial associations a collective discussion of the technologies developed at kolkhozes and sovkhoses for the production of plant-growing output (and not just in plant growing) taking into account the developing conditions in each field of crop rotations. This would help specialists make the appropriate corrections in their preliminary plans and avoid mistakes. And errors have been a frequent phenomenon in the work of agronomists in recent years.

Particular attention has to be paid to improving the application of mineral fertilizers so as to raise their yield. Academician D.N. Pryanishnikov once said: "One must not compensate for the lack of agrochemical knowledge through excess use of fertilizers." At a number of places last year, they applied high doses of nitrogen fertilizers on crops being cultivated on pure fallow lands, which led to the lying down of grain, to a decline in harvests and to a deterioration of the quality of the grain. On irrigated lands, where it appears to be possible to regulate not only the food but also the water regime and, along with this, the formation of an agricultural plant community, one must everywhere begin to apply the methods for programming the yield. The corresponding recommendations and technologies for the growing of harvests under the given program have been worked out for all oblasts, krais and autonomous republics. In the republic, this method is already being applied on hundreds of thousands of hectares and it provides for an increase in the yield, everything else being equal, of 30 percent while simultaneously saving irrigation water.

Worthy of attention, in particular, is the experience of the computer center of Rostov Oblast, where, with the help of computers, they have developed a technology for the growing of a programmed corn harvest. Depending upon the prevailing weather conditions there, they make the necessary corrections in the standards and times for the irrigation and feeding of the plants. As a result, the irrigated lands yield 100 quintals of dry corn grain. Analogous work is being in Stavropol Kray, Volgograd and Saratov oblasts, Kabardino-Balkarskaya ASSR and other places. It is now important for the local scientific collectives to give skilled assistance to farm agronomists in the development of technologies for the growing of different crops under a program having various versions, if possible: for a year with normal weather conditions, for a shortage of moisture, and for a year with above-normal moisture.

Along with farm specialists, the author of these lines was repeatedly obliged to make a detailed analysis in the regions of the technologies for each crop and each field of some farm or another.

It is a matter of the honor of agronomists working at kolkhozes, sovkhoses and RAPO's to perform at a high professional level all of the work in the growing of the harvest in the second year of the 12th Five-Year Plan and to ensure the fulfillment of the plans for the production and sale to the state of products in plant growing.

## SYSTEM OF WAGE PAYMENTS VIA SAVINGS BANKS ANALYZED

Moscow DENG I KREDIT in Russian No 3, Mar 87 pp 44-50

[Article by O.V. Yashin, deputy chief, Russian Republic Main Administration for Gostrudsbekass : "Wage Payments Via Savings Banks: Advantages and Problems"]

[Text] Questions of improving payment and accounting of wages of workers and employees occupy an important position in the system of socio-economic measures on increasing effectiveness of social production and raising the people's standard of living. Serious attention is being devoted to the expansion and proper organization of payment of the workers' monetary wages via savings banks, which began to be introduced extensively in the early 1970's. Since that time the socio-economic significance of this form of accounting has been systematically studied by scientific research institutes, by the Board and Administrations of Gostrudsbekass [State Workers' Savings Bank], and by certain ministries, departments, enterprises and institutions. Analysis has shown that such a practice provides an opportunity to derive a significant economic and social effect at all levels.

In consideration of the exceptional importance of this matter, the USSR Council of Ministers in its decrees of 2 June 1983, No 490, "On Measures for Further Developing Savings Matters and Assigning Cadres to Savings Banks," and No 410 of 7 May 1985, "On Measures for Overcoming Drunkenness and Alcoholism, and on Rooting Out Home Distilling Activities," the institutions of Gosbank, Gostrudsbekass, together with certain ministries and departments, were commissioned to expand in every possible way the practice of disbursing wages to workers and employees, and making monetary wage payments to kolkhoz members, via savings banks.

It would seem that the administrations of Gostrudsbekass, the central savings banks, and industrial and agricultural enterprises and organizations would take an active part in carrying out these decrees and instructions--the more so since they are of advantage to them. A certain amount of lively activity is in fact taking place. In 1986, in the RSFSR, 600,000 workers, employees and kolkhoz members switched to this advanced form of wage accounting, which is 32 percent greater than in 1985, and 61 percent greater than in 1984. However, no significant changes have taken place. At the present time only 5.4 percent of those employed in the national economy of the RSFSR receive their wages via savings banks. A great deal of painstaking work is in store here--work which would permit implementing the transition of wage payment to workers via savings banks on a much larger scale and in a short period of time.



Unsatisfactory results in expanding the practice of paying the workers' monetary wages via savings banks were influenced to a large extent by the fact that the savings banks are insufficiently equipped with accounting and computing equipment, and specifically with the automated bookkeeping equipment required both for improving operations in recording wages and deposit payments, and for accounting operations connected with these actions. Nevertheless, success in the matter of changeover of working collectives to a system of wage payment via savings banks, as in any matter, is determined primarily by the extent to which those officials on whom the organization and direct execution of this work depends consciously and actively participate in it.

In 1986 a great deal of activeness and responsibility in this work were displayed by the institutions of Gostrudsberkass in Rostov Oblast (V.F. Lavrentyev, chief of administration), and in Belgorod (I.M. Kobzaryev) and Tyumen (S.S. Lobanov) Oblasts; also in the Komi (T.A. Aksyenova), Kabardino-Balkar (V.I. Gubachikov) and Chuvash Autonomous Republics; in Krasnodar Kray (V.P. Kondratenko), and others. Savings Banks in Tyumen Oblast, for example, during the year took on wage payment services for an additional 40,000 workers; for this purpose they received ten buildings, and 100 additional persons were added to the staff, including 27 AUP [probably, administrative-operational personnel] and the wage fund to accommodate them. All of the supervisors of the aforementioned administrations of Gostrudsberkass, as well as the chiefs of the central savings banks in these regions are taking a demanding approach to carrying out the assignments they are faced with, and are implementing continuous control over the timeliness of concluding agreements with enterprises and organizations, as well as implementing the agreements; and they are organizing the acquisition of the computer equipment necessary for their work, or the redistribution of existing equipment among the savings banks. In the 10th and 11th Five Year Plans, successful results in transferring workers' wage accounts to savings banks were achieved by Gostrudsberkassa institutions in Arkhangelsk (A.P. Tufanova, former chief of administration) and Kemerovo (N.P. Orlov, former chief of administration) Oblasts. At the present time Arkhangelsk (M.N. Romanov, chief of administration), Novosibirsk (M.N. Chernoskutov), Tula (F.S. Revkov) and other Gostrudsberkassa administrations have proven to be poorly prepared to resolve the problems of further and significant expansion of the practice of paying the workers' wages via savings banks, and they were unable to energize this work, being content with the results achieved.

Many chiefs and officials at Gostrudsberkass institutions who are responsible for expanding the practice of paying workers' wages via savings banks have not reorganized themselves in the spirit of the demands of the times: they have displayed lack of initiative, have become acclimated to the unsatisfactory state of affairs, and justify their own inability or lack of desire to organize this work by recourse to all sorts of excuses. Supervisors at the Ryazan (G.I. Butin, chief of administration), Chita (M.P. Zimiryev), Astrakhan (V.S. Domnin), Pskov (L.A. Galkovskiy, former chief of administration), Moscow (A.F. Byazovoy), and Amur (P.P. Prikhodko) Oblast Gostrudsberkass Administrations and the central savings banks of these oblasts,

have failed to organize consistent, concrete work on this question; they are indecisive in resolving difficulties which crop up, and they do not rely sufficiently on the assistance of local party and Soviet organs--hence the rather poor results on this question.

Minugleprom [USSR Ministry of the Coal Industry] and Minnefteprom [USSR Ministry of the Petroleum Industry] have shown an interest and have taken an active part in organizing the transition to receiving wages via savings banks. As a result, over 70 percent of the workers employed in the enterprises, institutions and organizations subordinate to these ministries, situated on RSFSR territory, receive their wages via savings banks.

At the same time, savings bank officials were unable to convince the administrators of a number of enterprises and organizations subordinate to Minaviaprom [USSR Ministry of the Aviation Industry] Minpribor [Ministry of Instrument Making, Automation Equipment, and Control Systems], Minradioprom [USSR Ministry of the Radio Industry], Minavtotrans [RSFSR Ministry of Motor Transport], Mintekstilprom [RSFSR Ministry of the Textile Industry], Gosagroprom [RSFSR State Agro-Industrial Commission], and a number of other ministries and departments of the expedience and great socio-economic significance of the transition of working collectives to receipt of wages via savings banks. On the other hand, the ministries themselves do not display the necessary interest in this question. Quite often doubts in the economic effectiveness and expedience of the given form of accounting for wages can be heard, not only from the executives of enterprises and organizations, but also from certain officials from Gosbank and Gostrudskberkass institutions. To a certain extent this is caused by the fact that the advantages of such accounts are still not sufficiently propagandized via the press and radio. In this connection it would seem expedient to examine all aspects of the socio-economic effectiveness of the given form of wage accounting.

At the enterprises the economic effect consists primarily of eliminating the lost work time which occurs with disbursing the money directly at the places of production, as well as doing away with the services of cashiers recruited from among the production personnel to do the distribution. Thus, at the Zapolyarnaya Mine in Komi ASSR, the reduction in lost work time calculated on an annual basis amounted to 2,135 man-days, by virtue of changing over to wage payment via savings banks. This figure includes a reduction of 1,344 man-days connected with receiving wages right at the production site; 239 man-days by virtue of reducing absenteeism and tardiness; and 552 man-days in connection with eliminating the unauthorized cashiers recruited from the production personnel. Inasmuch as production output calculated on the basis of 1 man day amounts to 42 rubles, as a result of reducing lost work time additional production worth 91,800 rubles is produced per year. At the same time the mine annually saves 11,500 rubles previously devoted to paying the wages of the cashiers recruited from the workforce.

Repeated studies have shown that enterprises, institutions, organizations or kolkhozes annually save about 0.5-1.5 work days after switching to this form of wage accounting, which leads in the final analysis to improving product output and growth of labor productivity. In addition, the enterprises are practically freed from transporting, rechecking, and ensuring the safety of the cash, and from the operations connected with depositing the wages.

Paying wages via savings banks helps reduce various kinds of negative phenomena associated with receiving one's wages at work. Payday for some families brings happiness; for others, unpleasantness. The procedure being introduced significantly altered the position of those who love to "celebrate" payday, by placing before them a barrier of a material, organizational, and psychological nature.

The administration, party and social organizations, and the overwhelming majority of workers and employees of the enterprises which have switched to paying wages via savings banks have a positive reaction to this form of accounting. But these are enterprises and organizations, and workers as well, which by their own experience understand all the advantages and do not wish to return to the traditional procedure for receiving wages.

The majority of the enterprises to this day disburse wages to workers and employees independently, and in this connection they bear certain economic losses. This situation is brought about by the fact that the administration and social organizations of these enterprises do not fully trust the procedure of accounting for wages via the savings banks, and are altogether unable to compare the annually-accruing advantages of this form of accounting with the one-time losses connected with transferring the wage fund for the established personnel figures to the savings banks, and furnishing the accommodations which they need to provide proper services to the workers.

In this connection we have begun to recommend to the administrators of enterprises who do not trust someone else's experience, initially not to switch the entire collective to wage payment via banks, but only a small fraction of it, such that they can learn all the advantages by their own experience and make the final decision on this basis. This operating method provides a certain amount of results, but in the final analysis, a lot depends upon the boldness and initiative of the enterprise administrators.

The advantage for the Gostrudsbetskaya institutions lies in the fact that the work they carry out in paying wages to the workers and employees brings about an increase in the number of depositors, improves the deposit balances and the development of the savings bank system, and strengthens their material-technical base. The end result is improved services to the public.

For example, in 1985 the average increase for one account for deposits of workers and employees of the Mayskaya Mine (Rostov Oblast) amounted to 717 rubles; for the Sredneivakinskiy Sovkhoz (Kirovskaya Oblast), 431 rubles; for the Bryansk Knitted Wear Factory, 263 rubles, and so on.

On the average, permanent retention of funds deposited in the workers' wage accounts in the RSFSR, according to data from a sample survey conducted at a number of enterprises, institutions, sovkhozes and kolkhozes, amounted to 16.7 percent for workers' and employees' accounts, and 18.5 percent for the accounts of kolkhoz members. The overall increase in deposits in savings banks situated on the territory of the RSFSR amounted to about a billion rubles in 1986, by virtue of sums transferred for paying the workers' wages.

A more complete and accurate depiction of the effect of direct deposit of wages on the development of the savings business is provided by a comparative analysis of the Belorussian SSR, which has achieved the best results in transferring the working collectives to this form of accounting, and the RSFSR, where these results are significantly lower. In the BSSR, 33 percent of the workers have switched to direct deposit of wages in savings banks, while in the RSFSR only 5.4 percent have done so.

We shall compare the change in the indicators which characterize development of savings matters for the period from 1974, when work on direct deposit of wages in savings banks had just begun, through 1985, when it had become widespread in the Belorussian SSR. Results of the analysis indicate that for the years 1974-1985, deposits allowed to remain in the bank had increased by a factor of 3.3 in the BSSR, while in the RSFSR there was a 2.7-fold increase; the average amount of the savings increased, respectively, 3.2 and 2.5-fold; and the number of accounts per 1,000 citizens, by factors of 2.5 and 1.6.

As we see from the data cited, over the last 11 years, savings matters have developed at a significantly higher rate than in the RSFSR. As a result, the Belorussian SSR has surpassed the RSFSR in terms of the level of development of savings matters. This was brought about, in our opinion, primarily by the widespread practice in the BSSR of paying wages via savings banks, inasmuch as every worker who has this type of account becomes a depositor.

It should be noted that direct wage deposit in savings banks does not immediately lead to an increase in savings deposits, and not in and of itself; rather, it is a result of persistent, painstaking work. In the initial period after the switch to the progressive form of wage accounting, the overwhelming majority of workers and employees do not yet become depositors in the full meaning of the word, since by force of habit they withdraw almost the entire amount of the wages transferred to the savings banks, thinking that all that's happened is that the place where they get paid has changed. At this stage the savings bank commences the difficult but at the very same time beneficial task of helping the workers develop the savings habit and become depositors in the savings banks. The practical working experience of the savings banks indicates that the making of a depositor is a lengthy process which requires restructuring of the thinking and the psychology of the workers and employees.

Let's examine this on the basis of the work of Savings Bank No 5408/0338 in Zheleznodorozhnyy Rayon, Rostov-na-Donu. In 1983 only 200 workers and employees of the V.I. Lenin Electric Locomotive Repair Plant in Rostov were depositors in this bank. In 1984 1,300 workers at this plant began to receive their wages through the savings bank. At the same time the average annual growth in deposits to the accounts to which the wages were sent amounted to 10 rubles; that is, for all practical purposes the depositors were still those 200 people who had made deposits prior to the transition of the plant's working collective to this type of wage accounting. At the present time more than 1,000 plant workers hold savings accounts in this bank. On the average, 20-25 percent of the sums transferred to the accounts as wages remain as savings. The development of the savings business at this bank was the result of carefully organized work, effective communications

between the savings bank employees and the workers and employees at the plant, and a purposeful mass advertising campaign on the advantages of direct wage deposit in the savings bank--and, in particular, on the opportunities for continuous accumulation of the workers' savings for acquiring a motor vehicle, furniture, and so on.

Developing operations for direct deposit of wages in the savings banks promotes not only the all-round development of savings matters, it also strengthens the material-technical base of the savings banks. In 1985 alone, institutions of Gostrudsbetskass. in Penza Oblast were given accommodations for 18 offices from enterprises and sovkhozes in order to open new branches and expand the area of the existing banks; in Komi ASSR they received seven; in Tambov Oblast, five; and in Khabarovsk Krai, space for four branch offices. During the 11th Five-Year Plan, enterprises in Chelyabinsk Oblast transferred to the savings banks 25 pieces of automated accounting equipment; in Vologda Oblast, 13; and so on.

The quantities received from the enterprises permits expanding the staffs at the savings banks, which in turn promotes improved services to the public. Work on paying the workers' wages via savings banks has a positive influence on carrying out state plans for encouraging the public to deposit its uncommitted monetary resources and permits placing the development of receiving sums for deposit via cashless transactions on stable grounds. Practical experience indicates that with proper planning, the savings banks which disburse wages systematically fulfill their plans for deposits and tasks for transfer of funds, independent of market conditions.

Thus, expanding the practice of disbursing wages to workers and employees and the monetary earnings of kolkhoz members via savings banks provides real opportunities to the institutions of Gostrudsbetskass. to make gains in the basic directions of their activities. At the same time, their forward movement will be as rapid as their successful solution of this task permits.

In this connection it is hard to understand the position of certain administrators at Gostrudsbetskass. and central savings bank institutions, who have not yet genuinely set about this work, citing the unsatisfactory material-technical base of the savings banks and the excessive workload on the bookkeepers at the central banks. Inasmuch as these excuses are brought out rather frequently, we believe it is necessary to dwell on them in more detail.

At first glance they seem to be correct in all respects: How in the world are they to disburse wages when the existing accommodations do not permit providing normal services to the public on receiving payments and deposits and other operations; and when the bookkeepers at the central banks cannot process the deposit slips in a timely and qualitative manner, because of the great volume?

But in actual fact the poor material-technical base at the savings banks and the excessive workload on the bookkeepers are not the reasons for which the practice of paying wages via savings banks cannot be expanded, but are the results of unsatisfactory expansion of such a practice.

And if we do not grasp this right away, in a few years these problems will become even more urgent; for one should not place one's hopes on central allocation to savings banks of the administrative and operational personnel necessary to process the increasing flow of deposit slips. This would not be the proper thing to do. But widespread introduction of automation to these operations is being delayed for a number well-known reasons, and in order to resolve them, time is required. It is also necessary to consider the fact that the trend toward growth of deposit operations will continue in the next few years as a result of the expansion of transferring portions of the workers' wages, pensions, sums from the sale of agricultural products, and other sums; and the continuing development of deposits, and in particular young people's prize funds and periodic supplementary payments.

Under these conditions the bookkeeping office at the central savings bank can be built up only by virtue of staff transfers from the enterprises in connection with their transition to paying workers' wages via direct deposit in the savings banks. It is extremely important for the enterprises to strive to transfer administrative and operational staff personnel in accordance with the norms established by USSR Gosbank Order No 20 of 5 February 1985; that is, calculated on the basis of one staff worker per 1,000 workers or for about 4-5,000 operations per month. Thus, the Rostov, Bashkir, Chelyabinsk, and several other Gustrudsbetskass' administrations each received from 10-12 AUP [probably, Administrative-Operational Personnel] from the enterprises in 1986 to ensure accurate and continuous services to the workers. The staff personnel received were utilized for expanding the bookkeeping staff at the central savings banks. Enhanced bookkeeping staffs were created at these banks, labor organization was improved, and interchangeability of workers began to be utilized more widely--which ensured not only that the expanding volume of work was carried out on a timely basis, but also that the quality of document processing was improved. But in those oblasts, krais and autonomous republics where expanding the practice of paying the workers' wages via savings banks has not been given proper attention, the problem of overloaded bookkeepers--and thus, the quality of their work--not only is not being resolved, it is even getting worse.

A similar situation has come to pass with respect to building up the material-technical base of the savings banks. The administration of Gustrudsbetskass, which is earnestly and steadfastly trying to solve the problems connected with transition of working collectives to the direct deposit pay system via savings banks, has succeeded in significantly building up its material-technical base by virtue of receiving accommodations from the enterprises not only for the savings banks which disburse wages, but also for central savings banks.

In Kemerovo, Arkhangelsk, Murmansk, Tyumen, Magadan, Rostov, and Sakhalin Oblasts; Kabardino-Balkar, Buryat and Komi ASSR, which occupy the first ten positions in the Russian Federation in terms of the level of development of operations for disbursing wages through the savings banks, they have from 90 to 145 square meters of working space in the savings banks for every 10,000 citizens. At the very same time in Ryazan, Amur, Pskov, Kostroma and Kuybyshev Oblasts, and in Chechen-Ingush, Dagestan, Mordovian and Udmurt Autonomous Republics, whose results in developing such operations are worse, there are from 40-70 square meters of bank space per 10,000 citizens.

In connection with the preceding remarks, it follows that the institutions, and especially those which have an inadequate material-technical base and a heavy bookkeeper workload, and are not fulfilling their plans for deposits and tasks for transferring deposit sums, must carry out purposeful and continuous work with all the large enterprises on switching to a form of wage accounting which has proven its advantages. We must not assume a temporizing position, but should overcome the tradition of the "inertia of repose" and show initiative and socialist enterprise in solving these most important problems.

In the matter of monetary circulation, it is difficult to overstate the advantages of paying the workers' wages via savings banks. Inasmuch as a certain portion of the sums transferred to the workers' deposit accounts are not withdrawn, disbursing wages through savings banks, to the extent that sums are allowed to remain in the deposit accounts, leads toward reduced expenditures for preparation, recounting and ensuring the security of ready cash, and improved issuance results.

Disbursing wages via savings banks also eliminates surplus monetary flow, and as a result there is a reduction in losses to monetary circulation, and the rate of monetary turnover is increased.

It should be noted that the new form of accounting leads to reduction of the sums one keeps on hand, inasmuch as the workers receive money at the savings banks in the amounts they actually need to purchase goods and services. Clear evidence of this is the significant increase in the amount of the sums transferred that is allowed to remain on deposit, above the savings quota. Additionally, the workers can take advantage of paper transfer of sums from the funds on deposit, to pay apartment rent, and for municipal and other services; or receive checks from Gostrudsbetskass on the funds on deposit in one's account to pay for manufactured goods and certain kinds services--which also leads to reduced need for ready cash and reduction of the cash turnover.

In addition, disbursing wages via savings bank provides significant assistance in smoothing out irregularities in the disbursal of ready cash from Gosbank. First of all, less cash is required to pay wages under the new accounting method. Secondly, the savings banks carry out wage payments on a staggered schedule worked out jointly with the enterprise, the Gosbank department, and the central savings bank. As a rule, even within a single enterprise, wage disbursal is carried out by shop and by section in the course of 4-5 days, which eliminates the formation of lines at savings banks on payday.

As is well known, enterprises, organizations and institutions have been given the right to hold cash in their own safes above the amount of the cash ceilings established for them, for the purpose of paying wages and other monetary income to the populace, for not more than three calendar days, including the day on which the money is received at the credit institution. Kolkhozes, inasmuch as they are remote from the location of the banks, have been authorized to hold the monies received for the indicated purposes for a period of five days.

Thus, the traditional method of receiving monetary wages leads to a situation in which a significant part of the funds do not circulate but stay in the safe at enterprises and kolkhozes, since part of the workers, especially at major enterprises, are always absent (business trips, illness, etc.). This leads in the final analysis to slowing down the rate of cash flow.

In cases in which the monies for paying wages are not used for that purpose over a period of 3 days for an enterprise or 5 days for a kolkhoz, they are returned to the bank for subsequent issuance for these purposes at the first request of the economic body. Such a situation leads to reciprocal and needless transshipment of money.

The transition to disbursing workers' wages via savings banks leads to a situation in which such money transfers are eliminated, and that means that the costs for monetary circulation connected with them are also eliminated.

With the transition to the new form of wage accounting enterprises no longer have a need to receive ready cash for these purposes; consequently the possibility no longer exists for various kinds of violations of established procedures for expenditure, safekeeping and accounting for ready cash intended for wage payment. In this connection the necessity for control of this problem disappears as well, which leads to definite savings in living labor.

Thus, disbursement of wages via savings banks promotes reducing cash circulation, accelerating monetary turnover, improving the issuance result, reducing costs for monetary circulation, eliminating reciprocal and needless money shipments, smoothing out the irregularities in disbursing monies from the vaults of Gosbank, and in the final analysis promotes economies in material, labor and financial resources.

The workers have accepted this form of accounting well, which the results of survey questionnaires prove convincingly. Thus, in 1986 the Ivanov Textile Institute imeni M.F. Frunze conducted a survey by questionnaire of 2,862 persons employed at nine industrial enterprises and on three kolkhozes, in the course of which 91.2 percent of those surveyed reacted positively to receiving their wages at the savings banks; 3.3 percent had doubts on the expedience of this form of accounting; and 5.5 percent responded negatively. Negative opinions were expressed for the most part by workers and employees at enterprises which had switched to paying wages via savings banks rather recently. The difficulties of the initial period were noted in numerous questionnaires. This testifies to insufficient organizational and preparatory work by the institutions of Gostrudsbetskass. If in the course of preparations the central savings bank and the enterprise did not think through together and did not resolve questions of the periods for disbursement of wages or the operating procedures of the savings banks in accordance with the desires of the workers--questions of acquiring documents, of cash transactions and other questions at the initial stage--shortcomings in this work are inevitable, and these give rise to justifiable complaints. More than half of those questioned under 35 years of age, 38.5 percent from 35 to 50 and 28.4 percent over 50 noted that paying wages via savings banks promotes greater economies in spending; 26 percent of those surveyed over 50 years old, 18.8 percent from 35 to 50 and 15.6 percent under 35 years old stressed that this form also has an effect on improving family relations.



The statements of certain workers and employees are of interest. For example, M.B. Borisov, a worker at the 7th of November Mine in Kemerovo Oblast, stated that "I'm satisfied with receiving my wages through the savings bank; it's a good deal, and a great convenience. You take out as much as you need, and what remains in your account is savings." A.V. Podmazov, a miner at the same mine stated, "In my opinion, new things always encounter opposition. At first a lot of people were dissatisfied; but now it's another matter altogether." V.L. Gurin, party committee secretary, and N.D. Nikolaychuk, trade union chairman at the Kurzhinovo Furniture Factory in Stavropol Kray, reported that "The new form of disbursing wages via savings banks is advantageous both to the state and to us. Time has convinced us of this."

Time has also convinced the officials at Gostrudsbetskass institutions of the necessity of developing this procedure of paying wages to the workers. But practical experience shows that it is a rather long and sometimes thorny path from the recognition of the need for this form of accounting to its introduction. The existing procedure for transfer of staff personnel and the wage fund by the enterprises and organization has an especially adverse effect on the results of this work. At the present time the official records for forwarding the labor ceilings and planned wage fund for the staff by the enterprises and the central savings bank are sent through the chain of command to the corresponding ministries or departments, which on the basis of these records forward the number of staff personnel and wage fund. At the same time the documents on forwarding the number of staff personnel and the wage fund in each separate instance, even if it is a question of one or two personnel, are sent to USSR Gosplan, Minfin and Gosbank, and on through the chain from USSR Gosbank to the Board of USSR Gostrudsbetskass, and the republic, oblast, kray or (autonomous) republic main administration of Gostrudsbetskass and the central bank. As a result a great deal of time is spent in official correspondence. A great number of different organs become involved in this work, including the ministries. And if someone from one of the ministries or one of the organizations decides to "stretch out" the transmission of the number of personnel, then--unfortunately it happens--these questions take months to decide, and in certain cases are never decided at all. In addition the existing procedure requires a great expenditure of labor in compiling the documentation for the official transmission of the number of personnel, and leads to a significant increase in the amount of paperwork connected with expanding the practice of paying wages via the savings banks.

In order to further develop operations on disbursing the workers' monetary income, simplify the transmission of the number of personnel, save labor and material expenditures, and reduce the paperwork, in our opinion it would be expedient to establish a procedure under which USSR Gosplan would annually allocate staff personnel for these purposes to the system of USSR Gostrudsbetskass at the expense of the corresponding ministries and departments. The staff personnel and the wage fund can be allocated for carrying out this work in accordance with the planning charts approved by local soviets of people's deputies for switching the enterprises to this form of accounting, taking into consideration that they are compiled for the five-year plan and are broken down by year.

The problem of providing personnel and expanding the training of cadres for Gostrudsbetsk institutions deserves special attention. Moreover, not only the quantitative, but also the qualitative side of the question is significant. Even at the present, in connection with the significant growth in two preceding five-year plans of the volume of operations accomplished by the savings banks, the problem of training qualified cadres is severe. Savings banks are experiencing the need for graduates of vocational-technical schools, technical high schools, and especially higher educational institutions.

In our view the solution of the problem of organizing special training for students in higher educational institutions for work in Gostrudsbetsk institutions is very important. You see, to this day, hardly any economic VUZ has organized training of students in savings affairs. As a result, their graduates, when coming to work at Gostrudsbetsk institutions, either depart after working three years, or they undergo retraining, which requires large expenditures not only of their work time but also the time of the skilled specialists.

In the final analysis the lack of and the insufficient training of cadres, and their inability to organize in the proper manner the disbursal of wages via savings banks can not only bring to naught the socio-economic significance of this form of accounting, it can also lead to worsening of services to the public. In this connection expanding and improving the quality of training of cadres is, in our view, a determining factor of this important work in all organizations.

One of the most severe problems is the high degree of labor intensiveness in operations for entering deposits in the accounts and on disbursing deposits. Inasmuch as in the near future the scale of operations of savings banks on disbursal of monetary earnings to the populace will increase, the question of simplification of this work is being put on the agenda. Simplification, in our view, must be based upon accelerated introduction of electronic computer equipment, mechanization and automated operations to the work of the savings banks. Currently these most important questions are being resolved at a slow rate, principally because of the lack of equipment. The need for automated bookkeeping equipment in the savings banks of the RSFSR for application to operational and bookkeeping work was far from completely satisfied in 1985 and 1986. The automated bookkeeping equipment received was not even enough to replace the machines which had to be written off.

In consideration of the tasks facing the savings banks at the present time, operational measures are being taken to provide them with equipment; but, considering the fact that the solution of this problem takes time, and understanding the full urgency of the problem, I would like to stress the necessity for the administrations and central savings banks to seek out opportunities to acquire this equipment in the localities, at major enterprises and organizations.

Working out and implementing coordinated programs for automated calculation of wages in the branches of the national economy and transferring these sums to accounts for deposit in the savings banks also has an important role.

At the same time, depending upon the availability of equipment and means of communication, the enterprises may use various methods to transmit information on wages to the institutions of Gostrudsbetskass. It seems to us that the most progressive method of operations is to use the direct communication channels of computer centers. Depending upon local conditions and capabilities, technical information media may also be used--magnetic disks, magnetic tape, or perforated tape--which, after the required information is recorded on them, will be sent to the savings banks for entering the sums in the accounts.

Resolving the problem of entering sums in the accounts through the use of technical information media or in a real-time mode will in our view permit accelerating this process and accomplishing it without error; it will also free a portion of the savings bank workers for other duties; increase the labor productivity of the operational bank workers; and in the final analysis will improve the services to the public.

Without solving these problems it will be difficult to count on widespread introduction of cashless transactions for wage payments. But we must urgently strive to resolve the questions which have been posed, and only then will it be possible to guarantee the kind of development of cashless transactions for the public which correspond to the demands of the times. Wage disbursal through savings banks is the first stage of cashless transactions. We must prepare ourselves for paying accounts with personal checks, and in the future with magnetic cards, for cashless transactions by the public for goods and services.

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## SINGLE HEAT SOURCE FOR RAYON CENTER STUDIED

Alma-Ata NARODNOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 2, Feb 87 pp 32-33

[Article by P. Markov, chief specialist of the Long-Range Development Section of Rural Power Engineering of the GPI Kazselenergoprojekt [State Design Institute for the Design of Kazakh SSR Rural Power-Engineering Facilities]: "Rayon Centers Need a Single Heating Source"]

[Text] The prime cost of generating heat energy is to be reduced by 4-5 percent during the 12th Five-Year Plan. One of the ways of resolving this problem is to develop and introduce rational schemes for supplying heat to cities, rayon centers, workers' settlements and rural communities.

An especially unfavorable situation has prevailed in rayon centers. The fact is that organizations of various ministries and agencies have striven to provide themselves with their own boilerhouses. As a result, this picture can often be observed now: administrative buildings standing in a row have their own autonomous small-capacity boilerhouses of low KPD [efficiency]. In brief, the departmental approach has led to the placement of them at each facility. It is not astonishing that in some rural rayon centers their number has exceeded 20.

There is no need to state what losses the republic's economy has suffered because of this. However, it is not so simple to change the situation for the better right away. For this purpose, schemes for the rational siting of heat sources are needed, and one proprietor is needed who will answer for implementation of the restructuring. The rayon ispolkoms should undertake this burden, in our opinion.

One of the primary matters, which will brook no delay, is the radical revision of the state of heating sources in cities and villages and the performance of feasibility computations in order to substantiate an optimal level of concentration of heat-supplying systems, during both rebuilding and new construction. However, this work practically is not being done in the republic. Kazsantekhproyekt [Kazakh State Design Institute for the Design of Sanitary Engineering Facilities] previously was engaged in this but its project plans for 1986 unfortunately did not include this work.

The development of rational schemes for supplying heat for cities, workers' settlements and rural communities also need improvement. Today,

Kazglavstroyproyekt [Main Administration for Design Organizations under Kazakh SSR Gosstroy] subunits prepare technical documentation, but only for rural rayon centers with populations of more than 20,000. For the others, as before, everything is built on the principle of independent action. It would seem that this is not correct. Not only rayon centers but also villages should have rational schemes for siting heating sources.

Obviously, during the development of designs for the reconstruction and for the new construction of boilerhouses, it is important to call for the installation of progressive equipment. Serious miscalculations connected with the choice of equipment parameters and with reduction in the prime cost of generating heat energy are frequent. Here is a typical example of this approach. A design for centralization of the supplying of heat had to be developed for Marinovka, a rayon center of Tselinograd Oblast. The Kazakh Division of San-tekhproyekt surveyed heat sources. It pointed out that 14 boilerhouses for heating, which more than 40 people tend, are operating in the rayon center, but none of them supplies the village's needs. The air temperature in production, administrative and social buildings and housing is below the norms.

Specialists of the prime institute, Kazselenergoprojekt, developed a design for a boilerhouse for Marinovka village. It called for, in all, two KYe-10-14 S type boilers. The Biysk Boiler Plant produces these new and specialized boilers. The two aggregates will provide the designed heat load. Only 16 people will be needed to tend the equipment. The annual fuel requirement will be reduced by 2,057 tons of graded coal. The prime cost of generating the heat energy will be lower. It will be 2.65 rubles instead of 3.44 rubles per GDZh [gigajoule].

Our institute is engaged in working out efficient designs for the development and rebuilding of fuel systems and for other rayon centers also. But here is the trouble: the new equipment that is incorporated in the design requires more highly qualified regulating personnel. For the operating pressure in the new boiler installations is severalfold higher than in the old ones, and the water temperature in the system is 40-50 degrees higher. Unfortunately, there is no one in the republic who is trained on them. Therefore, difficulties are now arising in implementing the design, not only in Marinovka village but also in other places. The fact that the boiler equipment named above has begun to be used by many activities in the republic exacerbates the personnel shortage. In particular, the equipment has already been installed at central farmsteads of the Baltabayskiy, Dzhetygenskiy, imeni Kirov, Kok-Tyube and other sovkhoses in Alma-Ata Oblast. Similar heating systems are to be used also in other oblasts.

It is desirable to organize the training of the regulating personnel. Simultaneously, the degree of industrialization of construction of heating systems in the village must be raised. Erecting them by the in-house method or through the efforts of student construction detachments is ineffective. Needed are specialized construction organizations, placed at the disposal of the construction base, that produce prefabricated reinforced-concrete structure and can do installing work at a higher technical level. Oblast agroindustrial facilities can establish such subunits. There is enough work for them for a long time to come. Heating systems must be regularized in rayon centers and then also in workers' settlements and other communities.

Work on the centralization of heating capacity and transfer to a higher target for supplying heat for rural residents should be accelerated. This will meet fully the demands of the day.

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## RURAL ELECTRIC POWER SUPPLY LAGGING

Alma-Ata NARODNOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 2, Feb 87 pp 42-46

[Article by A. Trofimov, director of the Kazakh Division, and M. Rabinovich, chief of the Engineering Section of VGPIiNII Selenergoprojekt [All-Union State Design Institute for the Design of Rural Power-Engineering Facilities]: "Rural Electric-Power Engineering Needs Technical Progress"; passages in upper case published in boldface]

[Text] The successes in developing a centralized electric-power supply for Kazakhstan's agriculture are well known. However, the reliability of the power supply for customers has ceased to satisfy the needs of modern production and prevents its normal functioning.

The integrated mechanization of agricultural production is based upon broad electrification. This is especially characteristic of animal husbandry and poultry raising, in which the basic and most important operating processes--the preparation and dispensing of feed to animals and poultry, cleaning the premises of dung and manure, the dispensing of water, the milking of cows, the primary processing and preservation of milk, local warming for young stock, incubation, blower ventilation of premises, and a number of other operations--are oriented to the use of machinery and mechanisms with electric drive. Therefore, an interruption in the electrical supply of more than 15-30 minutes leads to disruption of the operating technology and spoilage of output of semifinished products and sharply reduced livestock productivity and labor productivity. Restoration of the electrical supply does not, as experience has shown, restore the normal operating process right away. Where the interruption is prolonged, serious disturbances of complicated physiological and biological processes are possible that can lead to a reduction in productivity of cattle, illnesses and even the death of livestock, fowl and plants.

The harm to the national economy in such cases is irreparable since, because of the specifics of agricultural production, losses of output cannot be compensated for or made up through overtime work in periods following the breakdown. In addition to the economic harm, cessation of the electricity supply leads to other negative social and economic consequences.

Scientific research has established that the average computed damage to customers that produce agricultural output from a shortfall in the release of

1 kWh of electricity is, in monetary terms, 0.75 ruble. The rules for use of electricity call for penalties for interruptions in the delivery of power. The power-supplying organization should reimburse kolkhozes, sovkhoses and other agricultural enterprises for the harm done in the amount of 8-fold the cost of the shortfall in delivery of electricity, which for productive consumers is only 0.08 ruble per kWh, that is, almost 10-fold less than the amount of the estimated damage. It should be emphasized that, since branch directives and methodological documents lack appropriate statistical accountability for electricity for farm customers, a strict economic evaluation of the consequences of shutoffs and interruptions is still practically impossible.

In order to take effective measures for insuring reliability of the power supply for agricultural customers, the root of the existing negative phenomena should be exposed.

For many years, planning organs have viewed the erection of rural electric-power grids as a second-priority type of construction of production facilities. Up until the end of the 1970's, the Union design norms did not require a high level of reliability of the electric-power supply for agricultural production. For this reason, and also because of the limited amount of capital investment and resources in the form of wire, cement, metal constructional structure, power poles and transformer substations (for the large-scale construction of rural distribution grids), the newest technical solutions that would insure uninterrupted electric-power supply for rural customers could not be used.

Low-quality materials and articles that did not insure adequate operating reliability were shipped to fill the needs of rural power-grid construction. Wooden supports were made from power poles that were ungraded, damp and poorly impregnated with wood preservatives, factors that promote intense decay of the wood. The posts of the overhead-line supports became unserviceable well before the end of the estimated service life. Because of poor quality of the concrete, the reinforced-concrete overhead-line supports that were installed in the 1960's have already begun to be destroyed. As much as 40 percent of the accidental breakdowns of 10-kV overhead lines occur because of substandard insulators. Major restrictions on the delivery of line conductors for rural overhead line have existed. The conductors were small in cross-section and were made primarily of aluminum, which has less mechanical strength. This caused numerous breaks in the wires, a fact which often led to the destruction of overhead-line supports, especially those made of reinforced concrete.

Numerous uncoordinated deviations from the designs were committed, and there was practically no monitoring of construction quality. Maintenance of the distribution grids, especially those on the books of sovkhoses and kolkhozes, was not performed satisfactorily. Repairs were made poorly because of a lack of materials, equipment, transport equipment and a shortage of personnel. Physical wear of the distribution grids outran their restoration through overhaul.

Many 10- and 0.38-kV lines (especially those carried on wooden supports) are now close to the end of the maximum service period or have exceeded it and



are in a state unsatisfactory for operations, and thus are the source of constant accidental switchoffs.

As a result of great physical wear, 15 percent of all the 10-kV and 20 percent of the 0.38-kV overhead lines in the republic need rebuilding, restoration or complete replacement.

Only a third of the 13,700 rural 10-kV overhead lines have been interconnected with independent sources of electric-power supply, and only solitary lines have been equipped with devices for melting glaze ice. A fifth of the rural 35-kV overhead lines, which were constructed at the initial stage of electrification, are in need of high-strength reinforced-concrete supports, improved insulation and steel-and-aluminum wires that are made in accordance with modern standards of reliability: for ice-and-wind loads expected once in 10 years.

Equipment and switching devices, which have all been allocated in restricted amounts, do not incorporate the parameters and specifications needed for stable operation of the electric-power grid in Kazakhstan's climate. The degree of completeness of outfitting with resources for protective relays, automation, communications and control do not satisfy modern requirements for electric-power supply reliability.

The line insulators for outdoor installations that industry supplies have proved to be not durable--they break down a few years after installation. The design and quality of plant manufacture of completely outfitted 10/.04-kV customer transformer substations of the KTP (complete transformer substation) type are not satisfactory. They have inadequate packing and sealing: breakdowns of insulators occur frequently because of condensation of the moisture that gets inside.

For more than 20 years the country's electrical-equipment industry has been "solving" the problem of developing and organizing the mass production of efficient devices for the automatic voltage regulation of transformers under load. Their absence degrades considerably the quality of the voltage and leads to great losses of electricity in the distribution grids.

The power-consuming installations at sovkhoses and kolkhoses have also proved to be unreliable. The specific operating conditions of electrical equipment and of electrical installations in rural production premises (the effects of ammonia, hydrogen sulfide and carbon dioxide, the presence of moisture and dust in large amounts, and temperature fluctuations) require that industry develop and set up the mass production of special modifications of electrical products of high reliability for agricultural purposes.

Without belittling the achievements in electrification of agriculture, and giving due credit to the selfless labor of the service's workers, who succeeded, under trying circumstances, in laying the basis for modern electric-power engineering for the countryside, it is necessary to assess critically the experience gained in its design, construction and operation. On the basis of both this and a realistic assessment of the production-economics potential, let us make constructive recommendations on the restructuring of and radical improvement in providing agriculture with electricity.

Reliability is the chief indicator of the quality of an electric-power supply. Providing it is a complicated engineering-economics problem that involves several plans. And it can be solved only with the large-scale use of new design programs that are founded on scientific and technical achievements, a sharp rise in the organization of construction and the level of technical maintenance, and regularization of the power-engineering services of farm customers.

The first step in solving the problem of reliability of the electric-power supply is that of providing customers with a second independent source of electricity.

It is transmitted from the power system's power stations or supporting power-supplying substations to the customers by means of an arrangement of successively joined elements: overhead power-transmission lines and distribution-type transformer substations for the various areas.

These structures are susceptible to constant external atmospheric effects--temperature fluctuations of the surrounding air, wind, deposits of glaze or rime ice on the wires, lightning surges and dust storms, as well as river flooding, soil creep, earthquakes and other natural phenomena.

If the customer receives electricity over only one electrical-transmission chain (the radial scheme of power supply), then the probability of switch-offs, which can be caused either by accidental disturbances or by planned switchoffs of various grid elements (the power line or transformer substations) for preventive inspections or execution of the required maintenance, is great.

In the initial stage of centralization of the electric-power supply, when the problem of total electrification for rural customers was solved, electric-power supply schemes were effected, as a rule, by the radial method. In the modern era of power supply, a second feed is provided by the erection of additional overhead lines--reserve grids. It should be done at all levels of the power-supply system, beginning with the highest voltage.

This is, in essence, a comprehensive engineering solution, which combines new construction and the reconstruction of existing power grids. It should provide for a "duplication" of transformers at distribution and customer substations and the erection of ring power-transmission lines that connect the substations of all levels with a second source of electric-power supply. These measures should be accompanied by reinforcement of the electrical and mechanical strength of network constructional structure and by increased reliability of the equipment on the segments of the grid being rebuilt, by automation of the operating modes of distribution grids, the application of remote control, and the introduction of perfected electrical protection and modern means of communication and control.

The republic's agriculture numbers about one and a half thousand important customers: livestock complexes, poultry factories, and large livestock farm sections that sustain cattle on an industrialized basis, three-fourths of which are in need of a grid reserve. Such a reserve insures a considerable reduction in the frequency and length of accidental and planned switchoffs of customers. This, by the way, is an extremely expensive measure which

requires colossal expenditures of material, equipment and labor resources. But unfortunately it still does not guarantee absolute reliability of the power supply, given Kazakhstan's specific regional and climatic conditions.

The overwhelming portion of Kazakhstan's area is marked by a severe climate, high atmospheric activity, frequent and intense glaze icing, snowfalls with ensuing gusty winds, hurricanes and protracted blizzards. Therefore, many lines periodically are subjected to extreme effects that often lead to breakdowns. The most catastrophic accidents occur during winter, when rapid elimination of the consequences of accidents is hampered by bad weather and lack of roads.

In considering what has been said, it should be explained clearly that one radical method of supplying a reserve that completely precludes accidental and scheduled interruptions of the customers' power supply is a local (autonomous) reserve, which is the installation of electric-power sources directly at customer farms.

And another problem must not be ignored. Much of the standard structure for rural overhead-line supports that is used in construction is ineffective under the republic's climatic conditions, since they were designed for lighter standards for glaze-ice and wind loadings that are typical of the country's European portion and do not have enough mechanical capacity (especially reinforced-concrete supports for 10-kV overhead lines).

An important deficiency of the lines erected on these supports is the high labor intensiveness of their operational maintenance and the substantial amounts of required regularly scheduled maintenance. At the same time, Kazakh SSR Minenergo data indicates that the estimated assigned production personnel per 1 km of existing overhead line is being reduced steadily from year to year.

There are no bases for supposing that this situation will change for the better later on. The dispersion of power-grid facilities, the great length and the ramified nature of high-voltage lines, the passage of their lines through localities that are frustrating because of terrain and geological features, the absence of roads for the passage of special machinery and mechanisms, and unsatisfactory communications exacerbates still more the situation for technical servicing of the electric-power grids.

By virtue of what has been said, it has now become necessary to update the whole arsenal of line-type constructional structure used in the republic by the development of a new generation thereof that will provide for a qualitatively higher level of operation.

A radical increase in the reliability level should be provided for not only by increasing the mechanical strength of the overhead-line support posts but also by applying a set of engineering solutions: the use of efficient line insulation, long-lasting building materials, higher-strength wire and more effective methods for fastening them to the support, increased load-carrying capability of the anchor supports, rational placement of the wires on the support, and so on. It is also important to protect birds from death by electrical current when they alight on overhead-line supports.

Newly erected lines should guarantee a standard operating reliability, with minimal expense for keeping them in efficient condition over the whole standard service life.

This especially concerns the 10-kV overhead lines, which make up three-fourths of all rural high-voltage lines, are more labor intensive in regard to maintenance, and are highly prone to breakdowns.

For this purpose, Kazselenergoprojekt is developing on its own initiative basically new high-technology constructional structure that is effective for Kazakh SSR conditions. They have been awarded tens of medals by VDNKh SSSR [USSR Exposition of Achievements of the National Economy] and many honorary certificates and have been widely distributed beyond the republic's borders.

Considering the positive experience that Kazselenergoprojekt gained during the execution of design and constructional work and the creation of new equipment for rural electric-power grids, Kazakh SSR Minenergo and its enterprises should energetically support the innovators' initiatives, solve the problems of financing the pioneering work for the new equipment for the republic's needs, and provide for the organization of acceptance tests and their universal introduction into construction.

This relates to unloading-type substations, crossarmfree anchor supports for 110- and 35-kV overhead lines, supports for 0.38-kV and 10-kV overhead lines, suspension insulators, and a number of other engineering solutions.

The initiative should be based to a greater extent on operating and constructional organizations than on design organizations.

Electric-power grid construction is now being done simultaneously at about a thousand farms in the republic. Such a dispersion of forces and funds over numerous construction projects is intolerable.

Based upon the fact that the continuous electrification of agricultural customers has been basically completed, and considering the limited nature (in the foreseeable future) of the capital investment and material and equipment resources dedicated to these purposes, the regional strategy and tactics for the planning and introduction of work on developing rural electrification should be restructured.

The following principles should form the basis for these operations: the development of predesign information on the zone and a subsequent concentration of forces and funds; priority for the farms with a high level of economic development; and first priority on operations for updating the fixed productive capital of rural power grids by reequipping and rebuilding them.

Under a zonal principle of organizing power-services work and with the concurrence of oblast agronomists, a determination should be made in each oblast of the two or three rayons of electric-power grid areas (RES's) in which the comprehensive construction, rebuilding and reequipping of power grids will be accomplished. The region served by an RES will coincide, as a rule, with the borders of the appropriate administrative rayon in a rural locality.

Line-type subunits of mobile mechanized columns (PMK's) will be relocated to the zones of planned comprehensive construction. The appropriate production base for the builders is being established, and machinery, mechanisms and labor resources are being concentrated through funds for temporary buildings and structures.

The annual ceilings on capital investment and on material and equipment resources allocated to the power service are concentrated practically completely on the performance of operations in the chosen RES's (except for emergency restorative operations in other RES's, if extraordinary necessity for this arises).

In the other RES's, maintenance personnel perform only planned overhauls. Such an organization of affairs will allow all operations to be carried out efficiently, with high quality and in short times, and active monitoring to be maintained over their execution.

The zonal principle requires a different approach also to organization of the design work. Working-design documentation should be comprehensive, covering all the facilities for the RES's zone as a whole. Its development should be preceded by the design stage of expanded feasibility studies (TEO's) or feasibility computations (TER's) and the latter should be carried out on the basis of detailed inspection work (of the customer farms, the existing grids, the proposed overhead-line routes, and so on).

Within each zone, the sequence of mutually coordinated operations for improving power supply and for intensifying the integrated electrification in regard to the farms (sovkhozes and kolkhozes) should be established, based upon the level of economic development of each specific farm and also upon the amount and importance of the commodity output it ships.

Choice of the most important directions for electrifying agricultural production, the priority of economic-activity zones and rayons, and also the priority of farms and customers in the plans for contracting operations should be determined by the republic's Gosagroprom [State Committee for Agricultural Production] organs.

In Kazakhstan there are almost no farms that could be a model of a modern, completely electrified and automated agricultural complex, with advanced electrical technology, progressive equipment, and a high level of operation and maintenance of electrical installations. This gap should be eliminated.

The government has adopted a series of measures that materially stimulate construction organizations toward reequipping and rebuilding existing facilities. However, the question of contract execution of these operations in the republic has not been resolved. Specialized contracting trusts of USSR Minenergo and the Kazah SSR that build rural electric-power networks are opposed to including work at existing electrical installations in the plan. Therefore, power-supply organizations are forced to carry out the integrated automation of and the installation of remote control for distribution grids and to rebuild substations with their own forces--the in-house method. Such a "method" of reequipping and rebuilding cannot be declared progressive. It adversely affects construction time and quality and the prime cost of doing the work.

The problem of doing construction work on enclosed customers' and distribution type transformer substations at production and housing buildings and at repair and maintenance bases has not been solved.

Being a large customer for electricity (with its consumption nonuniform during the day, for objective reasons), agriculture at the same time has at its disposal the potential for reducing the workload considerably, and, therefore, the consumption of energy at the power systems' peak hours, transferring it to other periods of the day, primarily at night.

Such high-capacity electrical consumers as water heaters, heating installations, irrigation pumps, and a number of other consumers can be switched on at hours more favorable for power-system operations, without harm to the operating processes.

By introducing an optimized system of operation, agriculture is capable of taking on the role of a flexible regulator-customer for power-system electrical loads.

It is desirable to regulate these matters with a special statute developed by Minenergo and Gosagroprom of the Kazakh SSR and to secure it with the appropriate contractual documents. THE RELIABILITY OF ELECTRIC-POWER SUPPLY IS AN INTERSECTOR PROBLEM. JOINT COORDINATED EFFORTS OF KAZAKH SSR MINENERGO AND GOSAGROPROM ARE NECESSARY FOR SOLVING IT.

It is obviously desirable that Gosagroprom organs take upon themselves the task also of creating a local reserve of responsible agricultural customers and executing the construction part in regard to enclosed transformer substations and the production-repair bases of rural electrical grids.

IT HAS NOW BECOME URGENTLY NECESSARY TO WORK OUT A REPUBLIC INTERSECTOR PROGRAM FOR ACCELERATING SCIENTIFIC AND TECHNICAL PROGRESS FOR THE ELECTRIFICATION OF AGRICULTURE. Such a specific long-range program should be formulated on a scientific basis, taking into account the scientific and technical progress that is forecast for agricultural production and for the rural population's everyday existence and for electric-power engineering and the electrical-equipment industry.

Directed toward providing for reliability of the electric-power supply, the program should be integrated, should cover organizational and technical measures for reducing losses of electricity during the transmission and distribution thereof, and should call for the introduction into agriculture of energy-saving technology, savings in production work and in the household, and the setting of norms for consumption.

Questions of the use of renewable sources of energy and the power resources of small rivers, optimal methods for the electrification of livestock facilities at remote pasturages, and protection of the environment are being subjected to review.

The Taldy-Kurgan Reinforced-Concrete Supports Plant and the Alma-Ata Electrical Machinery Plant of Kazakh SSR Minenergo should be involved in preparation for the reequipping of the rural electric-power engineering base. The

assortment and products mix are in need of considerable updating and expansion, based upon new and progressive trends.

The program should also examine the desirability of organizing at the republic's enterprises, particularly at Kazakh SSR Gosagroprom's enterprises, the output of outfitting articles for the needs of the electrical mechanization of agricultural production.

It is necessary to anticipate the development of an integrated specific program by thorough analysis of the prospects for developing the power-engineering situation in agriculture. For this purpose it is necessary to survey the equipment and operations situation of all rural distribution nets, to study the level of utilization of their fixed production capital, and to find available reserves for increasing the yield on capital.

A technically and economically feasible long-range plan for developing integrated mechanization and automation of the basic and auxiliary processes of agricultural production at sovkhoses and kolkhoses, and also for making use of electricity in heat-producing processes and in meeting the need for supplying heat, should be an integral part of the specific program.

For this purpose, major analytical work is to be done to assess the actual situation in the electrical mechanization of production processes at each farm and to determine the readiness for a buildup of it, after correlating the data obtained with long-range plans for the social and economic development of the countryside.

The result of the research and analytical work should be an economically substantiated set of specific technical and organizational measures and solutions, optimized by date, with an indication of who is to do the work, and with computations of the necessary material and equipment resources and the requirements for equipment and materials and for capital investment and labor resources. The systems approach should be the methodological basis for all the work.

Such a program will be a scientifically substantiated planning base for continuous two-year planning of survey, design, construction and installing operations and will enable the efforts of all agencies and organizations that are interested in or that participate in rural electrification to be concentrated.

Two diversely planned but mutually coordinated mainline directions for social and economic development in the countryside are united in a single program document:

--good-quality restructuring of the rural electric-power base; and

--intensification of electrical mechanization and automation of agricultural production.

This, by its nature, will be a fusion of important component elements of the Foodstuffs and Power-Engineering Programs that are applicable to the Kazakh SSR, which will enable the agricultural economy and the social life of the village to be prepared for the coming of the 21st Century.

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## TRAINING OF NUCLEAR POWER PLANT OPERATORS DESCRIBED

Kiev RABOCHAYA GAZETA in Russian 6 Jan 87 p 3

[Article by V. Kulchitskiy under the "A Reporter Reports" rubric: "Whom to Entrust with a Power Generating Unit"]

[Text] An analysis made by specialists with the use of extensive materials from MAGATE [International Atomic Energy Agency] has shown that every other shutdown at power generating units and every other accident at both thermal and nuclear power plants is the fault of operating personnel. What are we dealing with here?

First, with shortcomings in the system of training operators. Second, with inadequacies in the occupational selection of candidates for this responsible work.

The control panel of large power generating units is designed for about 1,000 different parameters. In comparison let me say that instruments in the cockpit of a contemporary jet aircraft are fewer by a factor of 10. And the difference is not just a matter of quantity. A pilot corrects deviations in aircraft position instantaneously with a single motion of his hand. But large-scale power plants have considerable inertia. The operator may close the system's valves but the changes of parameters may continue for tens of seconds or even for minutes. This is enough for an accident to happen. This means that the operator must be able to foresee such events, and to do that he has to have an excellent image of the flow of all the processes in the energy system.

Proper training is necessary for this. But how are operators trained?

In the past there was only one method: the tutorial system, or as it was usually called, the "over-the-shoulder system." Essentially it consisted of the trainee spending several months at the shoulder of an experienced operator, observing his work and studying his methods. After this the pupil was given a theoretical examination by the appropriate commission and became an operator.

In the Ukraine in late 1980 there opened next to the Tripolskaya GRES an instructional-training center to train operators (UTTs), where the instruction is based on completely different principles than in the past. The difference



is that here the trainee is not just an observer but an active participant in operator work. He sits at the console and, guided by the readings of instruments and sensors, he controls the power generating unit. When a disturbance is detected in the operation of the equipment, he takes steps to stop the crisis situation and does everything to prevent the shutdown of the power generating unit.

He doesn't always succeed in this. But even if an accident occurs it does not alarm anyone. This is because the instruments on the panel do not reflect actual processes in a power plant but a program in a computer. The computer responds to the trainee's actions just the way a real boiler, turbine, or generator would respond.

By playing out an endless number of difficult emergency situations and then analyzing his mistakes with his instructor, the trainee, with incomparable speed and more importantly with higher quality, masters all the subtleties of the complex process. And the examination completed by the trainee shows quite precisely whether a given trainee can work confidently under operating conditions.

But even that is not all. The UTTs has a special laboratory to study the psychophysiological characteristics of every trainee. These studies show unambiguously whether a trainee is suitable for operator work with its inherent nervous stresses occasioned by emergency situations.

The Tripolskiy UTTs has now been in operation for six years. It was set up on the initiative of the UkSSR Ministry of Power and Electrification, it employs methods and equipment that were developed by specialists of the Kiev Institute of Automation, and it has become the country's first center for training personnel for electric power plants under the new methods.

Building a center of this kind is quite a costly undertaking. But when they calculated last year how losses had been reduced at the Ukraine's thermal power plants because of fewer stoppages and shutdowns of power generating units in comparison with a five-year period when operators were trained under the old methods, it turned out that the UTTs has paid for itself in just one year.

However, the managers of the UTTs are still not satisfied with their work.

"We exist," said the center's chief, Yuriy Aleksandrovich Petlenko, "as a subdivision of the Tripolskaya GRES, although we train operators for all the Ukraine and even for other union republics. Not being an independent entity we also lack many legal rights. For example, we cannot prevent people being cleared for operator work who are psychophysiologicaly unsuited for it. We can only report that unsuitability on the basis of tests in our laboratory. We cannot even issue an official training document -- a diploma or license to work as an operator. We only issue a certificate that a person has undergone a course of training. We would like to receive bonuses based, not on the fulfillment of the production plans of the Tripolskaya GRES as is the case now,

but on the effectiveness and quality of our graduates' work, i. e., on our own achievements. That would give us much more satisfaction."

"And one more thing," continued Yuriy Aleksandrovich. "Engineering psychology contains the term motivation. This has a direct bearing on operator work. The fact is that under the existing situation operators actually have no stake in improving their level of skill. For them there is still no concept of grade structure -- of the grade structure that exists for pilots and even for truck drivers. An operator's pay likewise has practically no relation to his level of occupational skill. I consider this a serious omission."

The rapid and high-quality training of operating personnel for large power generating units would be inconceivable today without work on simulators. Especially for nuclear power plants, since here an operator's oversight or error could entail more than material losses.

For this reason, a department of the Kiev Institute of Automation that is headed by one of the founders of the Tripolskiy UTTs, candidate of technical sciences R. D. Tseplyura, is now working on the development of new simulators and new methods of training on them.

This has direct bearing on Chernobyl.

It is well known that the power generating units of the Chernobylskaya AES are now being run on the watch method. Constant training of operating personnel is therefore of special importance. Simulators are now being developed for the operators of the Chernobylskaya AES. It is intended for this equipment to become the base of a training center at Kievskaya TETs-6. The reason for this choice is that TETs-6 is the closest one to the housing area of the watch brigade workers running the Chernobylskaya AES.

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## NUCLEAR POWER PLANT UNDER CONSTRUCTION ON KAMA RIVER

Moscow TRUD in Russian 4 Mar 87 p 1

[Article by Ye. Ukhov, TRUD correspondent, under the "Report from the Forward Edge" rubric: "AES Under Construction on the Kama"]

[Text] Kamskiye Polyany, Tatar ASSR--A nuclear power plant is under construction in Tatariya on the lower reaches of the Kama. By the end of the current five-year plan its first power generating unit will be operating under industrial load.

Just recently, on the site of the foundation beneath the reactor there was an impressive mound. The scraper operators of the brigade of honored construction worker of TASSR [Tatar ASSR], U. Naurbiyev, who came here with the first workers' assault team of Kamgesenergostroy [Administration for the Construction of the Kama Hydroelectric Power Plant and Power-Supply Systems] cut it down to the very roots and rapidly prepared the base for the foundation slab.

"The Kama flood plain turned out to be a tough nut: rock, sand, and super-saturated bentonite," said Umat Kambulatovich. "Here is where experience from Kamaz [Kama Vehicle Plant] came in handy. When building the foundry there we also had to bite into similar soil. We reinforced the scraper buckets with steel blades and put a toothed ripper up front, and thus got through sectors that were hard to negotiate..."

Naurbiyev's men are now preparing the foundation for the second reactor. By applying the brigade contract to all the main aspects of construction the machine operators are successfully coping with their socialist obligations: to complete their two-year assignment by the 70th Anniversary of Great October.

"Seven or eight million rubles are expended monthly at the construction site," said the chief of the AES construction administration, M. Vayner. "By the end of the year we will triple that indicator."

What will the Tatar nuclear power plant be like?

"Its design capacity is 6 million kilowatts," said the director of the AES, L. Zhuravlev. "Each generating unit will produce as much electric power annually as all 16 units of the nearby Nizhnekamskaya GES. The Tatarskaya AES belongs to the new generation of plants and it incorporates the latest advances in our country's nuclear power engineering. Especially in the area of increasing safety: its design has provided for everything so that even in the event of the most unthinkable accident radioactive products will be reliably contained in a leak-proof shell.

At the same time as the plant, a city for its workers is being built at the foot of Mount Sharamat. This is what the inhabitants wanted: for the new Kamskiye Polyany to stand, not on the bare mountainside, but in the boundaries of the old inhabited settlement. In the designers' plan streets will be laid out here with modern multistory buildings and there will be erected cultural and sports facilities and the autonomous republic's largest complex of medical facilities. For those who prefer a rural way of life, country-style cottages will be built.

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## DESIGN ENGINEER COMMENTS ON POWER PLANT SAFETY

Vilnius SOVETSKAYA LITVA in Russian 27 Mar 87 p 3

[Interview with Vasiliy Stekolnikov, chief designer of the Hidropress Experimental Design Bureau, by APN correspondent Yuriy Shpakov; date and place not given; first two paragraphs are SOVETSKAYA LITVA introduction]

[Text] For many years VVER-440 and VVER-1000 nuclear power reactors, which were developed by the collective of the Hidropress Experimental Design Bureau, have been operating at nuclear power plants in our country and in Bulgaria, Hungary, the GDR, and the CSSR. In the near future power generation will begin from the VVER-440 at the Cuban AES, which was specially designed for conditions in that country -- with greater resistance to seismic activity and tropical heat.

But how do things stand with the safety of AES? This and other questions of the APN correspondent are answered by the chief designer of the Hidropress Experimental Design Bureau, Vasiliy Stekolnikov, a holder of the USSR State Prize and a hero of socialist labor.

[Answer] On the whole, AES safety is the ability of a plant to withstand infractions. In our present-day understanding this is the most important criterion for evaluating plant operation. What is meant by a safe reactor? We now approach the possible failure of a given device at an AES by the deterministic method, i. e., we proceed from the fact that a failure is theoretically possible. We also make this possibility the foundation for analyzing further consequences. In other words, we look at what the tree of failures that will follow from this, and at the systems that will fail and the degree they will be affected by this malfunction. In practice, however, a component in question may break down more often or less often. To evaluate its reliability, therefore, we must resort to the methods of probability theory, the employment of which must be based on the statistics of actual causes of breakdowns. We have therefore added a requirement to AES safety standards that obligates designers and planners to perform an analysis of possible malfunctions for each distinct unit. We are performing these studies. It is presently thought that if the probability of a serious accident or failure is less than  $10^{-6}$  per year, then this is an acceptable degree of safety. In any event, one accident per million possibilities is a substantially higher degree of safety than for

miners or chemical workers, or say, for drivers and passengers in motor vehicles or any other type of transportation.

[Question] So, absolute freedom from accidents is virtually unattainable?

[Answer] I personally think that no one could believe that not a single hair could fall from his head without his will and consent. There are likewise limits to security. Total safety is unattainable. And it is probably not needed: attempts to achieve zero defects in so complex a system as an AES would considerably complicate the installation itself and increase its cost. The effect you are striving for could have the opposite result. In nature there is no absolute solution to the problem of safety.

Any equipment can break down. When we speak of attempting to create absolute reactor safety we mean the possibility of predicting an accident in advance and having a reliable arsenal of means to localize it. Here we reason as follows: in its initial state -- when being fueled with uranium -- enormous potential energy is concentrated in a reactor. Since nowadays we refuel a reactor only once a year, we shut it down only once a year. But after the uranium is burned up it is a source of greater danger -- now it contains a gigantic store of radioactive products from uranium decay. We must therefore assume even in highly hypothetical situations that either of these potentials could exceed the reactor limits during the entire process of the plant's operation. Designers and planners therefore work out highly improbable situations and develop devices to collect energy and substances that have gotten out of control and to localize radioactivity so that it will not spread beyond the limits of the reactor containment.

[Question] A very personal question: how did you react to the tragedy at Chernobyl?

[Answer] Although the accident was caused by a reactor we did not design I experienced it as a personal misfortune, a misfortune for all nuclear personnel. This is because I am convinced that we are all largely responsible for the trust the people have put in us. I am well acquainted with the people who designed the RBMK [high-power pressure-tube] reactors. This was our joint misfortune.

We have once more subjected the design of our reactors to the most thorough analysis and have concluded that especially the reactors that were built a long time ago under former concepts, rules, and standards must undergo additional measures to improve their safety. The most important thing here is to equip first-generation reactors with systems to analyze the status of the equipment -- and this we are working on together with our colleagues from the fraternal socialist countries.

Furthermore, we are now thinking about what features should be incorporated into the new generation of nuclear reactors. They must be still more safe. On this score we must now work out clear concepts that are feasible, since improvement in safety, as we have said, is accompanied by increased costs and

complexities in design. But we are even now introducing promising solutions into existing designs.

A very substantial issue in my view is the work discipline of personnel and their certification, training, retraining, and simulator training. The infractions that were permitted at the No. 4 generating unit at Chernobyl must never happen again. In connection with that accident I have personally not had any doubts regarding the necessity of continuing to develop nuclear power. We understand the causes of the accident and we see that we have the required means to avoid such troubles henceforth.

[Question] Earlier you mentioned the human factor in the Chernobyl accident. Don't you think that in the man-AES system the first of these undergoes too much psychological stress?

[Answer] As for the difficulties of managing a nuclear power plant, they are -- at the level of present-day knowledge -- not difficult in comparison to other power facilities: TES, GES, or even TETs. Its special feature, as we mentioned above, is its large store of potential energy and radioactivity and the need to cool down a reactor after it is shut down. The people who work at an AES must strictly keep in mind what kind of power facility they are dealing with and the confidence placed in them for them to be working in that plant. Here, as for example in aviation, there can be no casual people. All the members of an AES collective are obliged to have the requisite qualities in measure proportional to the responsibility with which they are entrusted. It is also necessary for the stability of these qualities to be verified objectively at stated intervals of time. Specialists of Hungary, the USSR, and the CSSR are therefore now developing a new generation of simulators and training devices for AES personnel.

The problem of safety in our industry must be looked at only in the context of all interrelated problems. We in the collective long ago came to this conclusion. In the final reckoning the safety and reliability of a plant largely depend on the work of each us -- starting with the physicist-designer and ending with the technologists or assistants dealing with problems of quality control. However, I would still say the decisive factor is for the designer to make sure of the properties of the model he produces.

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CSO: 1822/120

## BRIEFS

ATOMS FOR FOOD--In 1984 the FAO and the International Atomic Energy Agency adopted a program on the use of nuclear energy in the food industry and in agriculture. The program's main thrust is research and development connected with agricultural products and requiring minimum costs and having an insignificant impact on the environment. The following may be noted among the program's main tasks: in the area of soil fertility, irrigation, and yields -- isotope and radiation research to optimize the practice of using fertilizer and water resources and the biological fixation of atmospheric nitrogen by crops under various systems of farming; in the area of plant growing and genetics -- genetically improving grain crops by the method of induced mutations for such indicators as increased yield, earlier ripening, and resistance to lodging, rot, and agricultural pests; in the area of animal husbandry and veterinary medicine -- improving the productivity and health of cattle with the aid of isotope research on reproductive disorders, feeding, and the ecological physiology of cattle; in the area of combatting insects and agricultural pests -- control or complete elimination of the main crop pests and disease vectors by relying on the method of sterilizing the males within an integrated system of health measures; in the area of agrochemicals and the consequences of their use -- improving the protection of crops and the products of animal husbandry from agricultural pests with aid of isotope research aimed at improving their effectiveness and safety and reducing to the minimum the effect of agrochemicals on the environment; in the area of preserving food products -- reducing losses after harvesting and promoting efficient use of the method of irradiating food products to preserve stocks of foodstuffs. [Article: "Use of Nuclear Energy"] [Text] [Moscow EKONOMIKA SELSKOGO KHOZYAYSTVA in Russian No. 2, Feb 87 p 35] 12697

CZECHOSLOVAK AES--Among the most important capital construction projects in Czechoslovakia are the Dukovany, Temelin, and Mochovce nuclear power plants. Thirty percent of all the country's investment in the fuel and energy complex in the current five-year plan is aimed at developing nuclear power. "Starting this year, the entire growth in electric power generated in the CSSR will be achieved exclusively by nuclear power plants. The construction of TETs in the country will be halted," said Stanislav Gabel, the chairman of the Czechoslovak Commission for Nuclear Power. The accomplishment of this grandiose program to restructure the power industry and convert it solely to the use of nuclear resources has been possible because of extensive international cooperation in the context of CEMA and to the exchange of contemporary technologies, experience, and advances in basic research. Czechoslovakia has thus attained considerable success in one of the leading avenues of scientific and technical progress. In the photographs: at the control panel of the second power gen-



erator; premises of the now-operating Dukovany AES. [Article "Power Without TETs"] [Text] [Moscow PRAVDA in Russian 13 Apr 87 p 5] 12697

NEW GENERATOR AT ZAPOROZHYE--Energodar, Zaporozhye Oblast--Forty-five days ahead of schedule the third power generating unit of the Zaporozhskaya AES has been brought up to its design capacity of 1 million kilowatts. The successful operation of the unit was made possible by the high quality of construction and startup work. An additional 250 million kWh of electric power will be generated. [Article by I. Sergeyev, PRAVDA free-lance correspondent: "Operation of Third Generator"] [Text] [Moscow PRAVDA in Russian 10 Mar 87 p 1] 12697

NEW REACTOR FROM ATOMMASH--No. 6 (422) of SOTSIALISTICHESKAYA INDUSTRIYA on Atommmash [Sverdlovsk Equipment Plant for Nuclear Power Plants] has come out. It publishes the socialist commitments for 1987 of the collective of the Volgodonskenergostroy Trust. Something remarkable took place at Atommmash in the first days of February. The plant workers completed work on the fabrication of the vessel of their sixth reactor. Hydraulic testing was successfully accomplished. The plant's No. 6 reactor will be installed in the first power generating unit of the Crimean nuclear power plant. The final work on the reactor vessel was successfully performed by the collective of the leading brigade of N. Tishchenko, who has more than once been the winner in socialist competition. Atommmash is carrying out tests of equipment that will make it possible to ship steam generators by rail without shipping containers. V. Chernishov, in the article "By Land, Water, and Steel Rail," tells how this work is proceeding. [Article: "Reactor for Krymskaya AES"] [Text] [SOTSIALISTICHESKAYA INDUSTRIYA in Russian 5 Feb 87 p 2] 12697

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UDC 621.643+656/621.5

## IMPROVEMENT IN CONSTRUCTION OF PNEUMATIC CONTAINER SYSTEMS

Moscow STROITELSTVO TRUBOPROVODOV in Russian No 3, Mar 87 pp 27-29

[Article by Z. I. Karlinskiy, Moscow Forestry Engineering Institute: "Measures for Improving the Quality of Erection of Pneumatic Container Systems"]

[Text] Domestic and foreign experience in the operation of pneumatic-container pipeline systems indicate that great dynamic forces of a random nature arise during their operation that cause deformation and destruction of either the pipeline itself or members of the rolling stock.\* A transport pipeline consists of various pipes, and in some cases there is a guide rail inside it for movement of the containers, and so it cannot be absolutely smooth, as is proposed in most of the research. During the assembly of the pipelines and the guide rails, and also during finishing of the joints, irregularities and shelves are formed with which the wheels of the rolling stock interact. The height of the irregularities on the inner surfaces of transport pipelines is 6-8 mm in most cases.

Irregularities adversely affect the operation of practically any pneumatic or hydraulic transport system. However, they are more dangerous for pneumatic container pipelines. Let us recall that in airfield construction the height of irregularities on a prefabricated landing strip should not exceed 5 mm, according to the specifications.

It is well known that, in moving wheeled equipment, no less important than the dimensions of an irregularity in the path is its ratio to the size of the wheels. This ratio is one of the indicators of the quality of erection of the way. This situation fully concerns transport pipelines, either with a guide rail or without one. The container's wheels cannot be large; as a rule they do not exceed 400 mm, which makes even small irregularities on the running surface difficult to ride over.

The quality of erection of a transport pipeline is a complicated indicator that describes the dynamic phenomena in the system and which, in its turn, depends upon a number of factors, such as the quality of execution of the construction work, the technical level of the equipment used, the technology and organization of the work, the workers' qualifications, and the quality of the pipe and other materials.

Analysis of the interaction of the container with the pipeline (or the rail) has indicated that the forces that arise here reach high values (see the

table) and should be considered during analysis of the rolling stock, the pipeline, and its supporting structure. Where there is poor quality in assembling the pipeline (or the rail), energy intensiveness in transporting loads increases 1.3-fold to 1.6-fold.

Constituent Disturbing Forces That Arise  
During Movement of Rolling Stock Along a Pipeline

Pipeline quality indicator	Disturbing forces, kN				Coefficient of resistance of the container's motion
	Horizontal component		Vertical component		
	Container weight, tons				
	2.5	5	2.5	5	
0	0	0	0	0	0.025
0.02	2.5	5	12.5	25	0.028
0.06	4.7	9.5	12.5	25	0.031
0.08	5.2	10.5	12.5	25	0.035
0.1	6.2	12.5	12.5	25	0.04
0.12	6.8	13.7	12.5	25	0.042
0.14	7.8	15.5	12.5	25	0.045

Research has established that, for effective operation of pneumatic container pipeline systems, the indicator for quality of erection of a transport pipeline should be on the 0.015-0.025 level. Achieving this is assured by the following values of the basic controllable parameters:

	Pipeline diameter, meters		
	Less than 0.6	0.6-0.9	More than 0.9
Excess of edges of joint elements, mm ...	0-1.5	0-1.5	0-3
Pipe ovality for any cross-section, %...	0-1.5	0-1.5	0-1.5
Gap between edges of joint elements, mm ..	0-2	0-3	0-5
Local irregularities, mm.....	0-3	0-3	0-3
Height of flash inside pipe, mm.....	0-1	0-2	0-3
Angular misalignment of pipe axis in relation to the base, degrees.....	0.3	0.3	0-3

Poor quality assembly of the pipeline (or rail) is one of the causes of the forced oscillations of pneumatic-container pipeline-system elements that occur in the horizontal and vertical planes. Oscillations of the pipeline, its supporting structure, and the rolling stock of the indicated transport systems are mutually related, and, in most cases, oscillation of one of the elements is enough to shake the system as a whole. The process being examined is also aggravated by the fact that the minimal frequency of the system's natural oscillations are in the 4-25 Hz range, dangerously close to the possible frequency of the forced oscillations.

Let us evaluate the influence of a number of constructional parameters of the container on the amplitude of its body's oscillations. As is known, the container's body is joined with the undercarriage by means of a number of spring elements. Figure 1 shows the effect of total stiffness of these elements  $C$  and the weight of the container  $m$  on the amplitude of the body's forced linear  $A_n$  and angular  $A_y$  oscillations, where the indicator

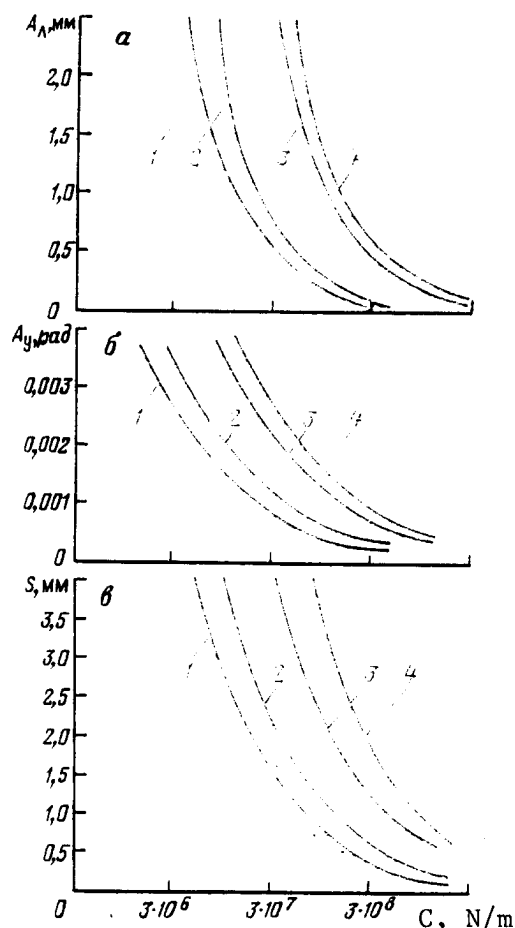
of the quality of the pipeline's erection is  $h = 0.02$ , its stiffness is  $C_2 = 6 \times 10^6$  N/meter, the frequency of forced oscillations is  $p = 2$  Hz, the coefficient of damping of the oscillations is  $n = 3$  Hz, and the body's length is  $l = 3$  meters. Shown here are graphs that describe the total linear displacement  $S$  of the point of the body that is most distant from the center of gravity (unfavorable), which is caused by its linear and angular oscillations. Where there is stable rigidity of the spring elements of the container's suspension, as its weight increases the amplitude of the body's oscillations grow and become higher than the static values 8-fold to 10-fold.

Figure 1. The Nature of the Container Body's Forced Oscillations:

1.  $m = 300$  kg.
  2.  $m = 600$  kg.
  3.  $m = 1,000$  kg.
  4.  $m = 5,000$  kg.
- a. Linear oscillation of the center of gravity.
  - б. Angular oscillation relative to the center of gravity.
  - в. Total displacement of the most unfavorable point.

In pneumatic-container transport systems that operate without pneumatic carriers, the tractive effort is created by sealed devices that are located directly on each of the containers, with a small gap along the pipeline's inner surface. In this case, where stiffness of the spring elements of the body's suspension is inadequate, a considerable displacement of it from an equilibrium position is possible, causing contact of the seals with the pipeline surface, wear thereof, and additional resistance to the rolling stock's motion. An analysis of the graphs in figure 1 indicates that the load-carrying capability of the container determines the required total

stiffness of its suspension's spring elements, and, consequently, the design of the suspension. Figure 2 shows the displacement  $S$  of the most unfavorable point of the container's body as a function of the specific stiffness of the spring elements  $C/m_1$  of its suspension, where  $P = 2$  Hz,  $n = 3$  Hz,  $C_2 = 6 \times 10^6$  N/meter, and  $l = 3$  meters. Damping the oscillatory system leads to a reduction in the amplitude of the container's oscillations. It follows from this that the total specific stiffness of the spring elements of the body's suspension should be assigned within the range  $7 \cdot 10^5 - 7 \cdot 10^6$ , and the coefficient of damping of the oscillations should be brought to 30 Hz by damping.



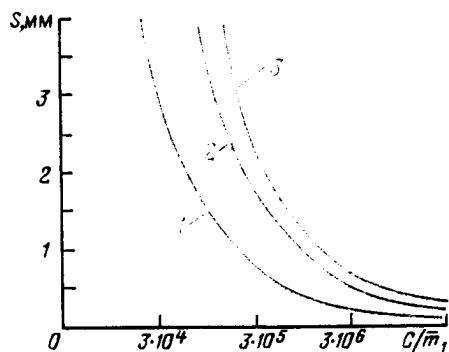


Figure 2. Dependence of Displacement of the Most Unfavorable Point of the Container's Body on the Specific Stiffness of the Spring Elements of Its Undercarriage.

1.  $h = 0.02$ .
2.  $h = 0.06$ .
3.  $h = 0.08$

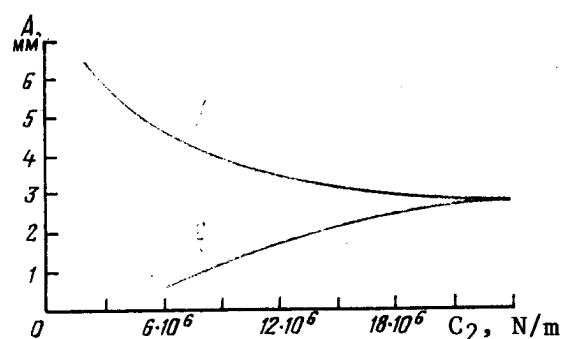


Figure 3. Influence of Stiffness of a Pipeline Laid on the Surface on the Amplitude of the Forced Oscillations of Elements of Pneumatic-Container Transport Systems.

1. The pipeline.
2. The body of the container.

The laying method and the stiffness of the pipeline affect the amplitude of the container's oscillations, and the latter is responsible for the nature of the pipeline's oscillations. The influence of stiffness on a continuous transport pipeline laid aboveground on the amplitude  $A$  of its oscillations and the oscillations of the container's body, where  $p = 2$  Hz,  $N = 0.02$ ,  $n = 30$  Hz and  $C/m_1 = 3 \cdot 10^5$ , is shown in figure 3. It is apparent from this figure that, in order to provide for reliable operation of pneumatic-container transport systems, the stiffness of a pipeline laid aboveground should be no lower than  $24 \cdot 10^6$  N/meter.

The quality of erection of the line portion of the indicated transport system depends greatly upon the quality of the original materials and, particularly, on the pipe. The use of standard-steel, electrically welded pipe, with a straight or spiral joint which has an outside diameter tolerance of  $\pm(0.4-0.7)$  percent and ovality tolerance no less than 1 percent, does not provide the required quality for erecting the line portion of pneumatic container systems.

In building pneumatic transport systems, it is rational to use special pipe, or a selected type of pipe, with minimal tolerance, from among the standard pipes. However, it must be kept in mind that, in both indicated cases, the labor intensiveness of the work is increased considerably, which indisputably affects the economic indicators of the transport systems. If, however, standard steel pipe is used without a preliminary selection, then it is desirable to eliminate the defects (irregularities) by the deposition of strong, wear-resistant materials. This technology allows the quality of the erection of pipelines to be actively influenced and this quality to be maintained at the prescribed level during operation.

FOOTNOTE

\*Oshe, Yu. K. "A Study of the Experience of Large-Diameter Pneumatic Mail in the Designing of Modern Pipeline Transport Systems." / From the collection, Kompleksnoye razvitiye promyshlennogo transporta [The Integrated Development of Industrial Transport]. Moscow, 1976.

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## NEW FORMS OF BRIGADE METHODS EXPLORED

Moscow RABOCHIY KLAS I SOVREMENNIY MIR in Russian No 1, Jan 87 pp 116-128

[Article by Leonid Abramovich Gordon, doctor of historical sciences, professor, and laboratory chief of the Institute of the International Workers' Movement of the USSR Academy of Sciences [IMRD AN SSSR]; Galina Alekseyevna Monusova, graduate student of the IMRD AN SSSR; and Alla K. Nazimova, candidate of economic sciences, docent, and head scientific associate of the IMRD AN SSSR: "New Forms of Brigade Organization of Labor: Problems, Contradictions and Prospects"]

[Text] The party's strategic line toward acceleration of the socioeconomic progress of the socialist society places among the decisive tasks that of increasing the effectiveness of labor on the basis of improving its organization and consolidating worker morale. As was noted at the 27th CPSU Congress, in this connection it becomes especially crucial to further deepen "socialist self-management in economics."

One of the most important directions for improving labor organization, raising labor morale, and developing the sense of being in charge and involved in economic self-management, is extensive dissemination everywhere possible and expedient, of the new type of brigade, which usually means lower-level labor collectives that have considerable economic independence and are oriented toward completion of an integrated cycle of work. In practice, the new forms of brigade organization of labor are reflected in the creation of brigades that work under a unified contract with payment according to the final results; moreover, in many of them the overall earnings are distributed according to the coefficient of labor participation) (KTU), the brigades are informed of the monthly, annual and five-year plans, and brigade cost accounting and the brigade contract are widespread.<sup>2</sup> In the new type of brigades, all other conditions being equal, the organizational conditions themselves create a basis for the organic unity of the labor and social activity of the worker in production, for here one can see especially clearly the interconnection between the process of labor and its results, the collective and the personal interest.

The implementation in reality of such principles of brigade organization and stimulation of labor as work under a unified contract and payment according to the final result, distribution of earnings taking into account the labor

contribution of each worker, the introduction of elements of cost accounting, and the creation of agencies for brigade self-management not only stimulates an increase in the productivity and quality of labor, but also contributes to involving all members of the brigade in the solutions to the main problems related to the activity of their labor collective. Such a form of public activity of the workers means their unmediated, direct and most all-encompassing participation in the management of production.

The new forms of brigade organization of labor comprise an important part of the overall system of measures directed toward intensification of the national economy and restructuring of management of production and the economy as a whole. The role of the new type of brigades is conditioned by the fact that they are the primary unit where the effect of these measures becomes complete apparent. At the same time, further development of brigade forms and the larger number of workers included in the higher, cost-accounting types of brigades becomes a powerful motive force and a kind of accelerator of the restructuring of management. The development of independence of the primary labor collectives and their changeover to cost accounting inevitably requires broader economic independence and the introduction of a more effective cost accounting at those enterprises within whose framework they are functioning.

A brigade as a form of cooperation of labor in the lower-level production collective has been in existence for a long period of time. But in the past this form of labor organization was applied only within limited spheres: either in sections where the technological conditions required simultaneous group participation of workers in the production process or in places where it was administratively expedient to break up large homogeneous groups of workers into smaller units. Here the forms of organization and stimulation of the labor of workers within the brigade were much the same in both cases.

The conditions of modern production create objective prerequisites for the dissemination of other forms of brigade labor organization that involve increased independence of the brigades and the development of intrabrigade collective foundations. While for the brigades of the traditional type the concept "collectiveness" meant basically joint efforts in completing a particular job, under the new forms of organization and stimulation of labor "collectiveness" means also joint participation in planning, distribution of the work and distribution of the overall earnings.

The need to develop new forms of brigade organization of labor arises first and foremost in connection with the radical technical and technological changes in production that are associated with the modern stage of scientific and technical progress. These changes are manifested in the increased proportion of means of labor for collective use. In addition to the utilization of the traditional machine tool fleet, where individual workplaces predominate, to a much greater degree than before there are powerful and complex sets of equipment, devices and technical systems that are collective work places that require the combined efforts of groups of workers.

There is a corresponding change in the technology of production. While under the conditions of utilization of mainly individual means of labor there is a predominance of discrete production technology whereby the majority of workers



perform individual complete operations, with systems of machines, mechanized and automated lines, and processing centers there is frequently a predominance of the kind of technological process whereby the production actions of many workers are organically merged together. For modern production it becomes typical to have all-encompassing flow lines for the entire technological cycle. Under such conditions there is a sharp increase in the significance of interconnected, smooth work on the part of the workers who are jointly running all units of the technological cycle. In a certain sense the scientific and technical revolution objectively strengthens the collective nature of labor and attaches a new quality to it. Because of this, the role of the individual worker also changes to a certain degree.

At the classic factory and even on the conveyor the operations of the majority of workers could be clearly distinguished from one another. Each worker creates his own kind of final product (part, semimanufactured product) or at least gives the intermediate product a certain final property.

In modern production this situation changes essentially. Collective work places and technology whereby the workers are strongly dependent on one another more and more frequently create a situation wherein even the intermediate product is the result of the efforts of the collective. Here the question of orienting the collective toward the complete work cycle becomes especially crucial. Moreover, the forms of labor organization that have developed under the conditions of traditional machine production frequently turn out to be ineffective in production that is based on modern technical equipment and technology.

Thus in the automotive industry, which is one of the leading branches in terms of the level of automation of production, during the 1970's the actual productivity of the automated lines did not exceed 50-60 percent of the planned level.<sup>3</sup> To a certain degree this took place because of the fact that the servicing of the automated lines, which requires the joint efforts of the collective of workers, was arranged, essentially, on an individual basis, according to the so-called functional principle. Within the framework of this kind of labor organization, the worker performs clearly determined functions for servicing the automated system and bears responsibility for high-quality performance only of these functions, without any regard to the workers of other specialties who service the same equipment. Such a situation led to a point where fitter-repairmen worked 65-70 percent of the shift, adjusters--60-65 percent, and electricians 70-75 percent, while the automated lines stood idle for up to 40 percent of the working time, waiting for adjustment (let us note that each hour of idle time of such a line costs a total of 60,000 rubles.<sup>4</sup>

But the changes in technical equipment and technology are not the only factor that dictates the need for applying new forms of brigade organization of labor within the framework of the primary production unit. Of no less significance is attention to the human factor, to the worker himself--the main productive force of the society and the subject of the production process. The contradiction between the individual structure of work and collective

automated means of production and the ensuing need to change over to collective organization of labor appears here in the most direct and obvious way.

The organic link between brigades of the new type and the needs of modern production and the modern working class have brought about their rapid growth in recent years. The need for this kind of growth has been emphasized repeatedly in party documents of recent years and it was also discussed again at the 27th Party Congress.<sup>5</sup> Predictably, since the beginning of the 1980's the spreading of the new forms of brigade organization of labor has been proceeding at relatively rapid rates. Suffice it to say that in 1984 the overall number of brigades of all types in industry had increased by a factor of 1.4 since 1980 and the number of workers included in brigade forms of labor organization--by a factor of 1.7. At the same time, the number of brigades of the new type working under conditions of cost accounting or under a unified contract increased by a factor of 2.2, and the number of workers in them--by a factor of 2.9. The new forms of brigade organization of labor now encompassed more than 80 percent of industrial workers who are included in brigades and approximately 50 percent of all the workers in industry (see Tables 1 and 2).

Table 1--Development of Brigade Forms of Labor Organization  
in Industry (thousands in parentheses--  
% of overall number of brigades)

	<u>1980</u>	<u>1982</u>	<u>1984</u>
Total brigades	1068 (100)	1377 (100)	1519 (100)
Including:			
in which workers work under individual order	517 (48.0)	315 (22.8)	300 (19.8)
in which workers work under single order	551 (52.0)	1062 (77.2)	1219 (80.2)
Of these:			
those that distribute overall earnings taking KTU into account	--	496 (36.0)	802 (52.8)
those that work under cost accounting conditions	--	137 (9.5)	336 (22.1)

The total statistical characterization of the expanded role of the new type of brigades in industry, with all of its importance, reflects only one side of the growth of the new forms of collective organization of labor. Even more important is the circumstance that along with the overall increase in the number of new brigades and the number of workers included in them there is a development, complication and enrichment of these new forms themselves. In this connection the tendency toward strengthening the collective foundations of the organization and payment for labor and also the establishment of brigade cost accounting acquire decisive significance.

As was already noted, the higher levels of collectiveness of labor and independence of the collective are mandatory, essential indicators of the new

type of brigade. But these indicators can be reflected to very differing degrees. The movement from the least collectiveness and the least independence to the most might be seen as the main direction of the internal development of the new forms of brigade organization of labor. Correspondingly, the differentiation of brigades according to the level of collectiveness of organization and payment for labor and the measure of their implementation of brigade cost accounting makes it possible to judge this development.

Table 2--Number of Workers Included in the Brigade Form of Organization and Stimulation of Labor in Industry (thousands of people, in parentheses--in % of overall number of workers in brigades)

	<u>1980</u>	<u>1982</u>	<u>1984</u>
Total	10,765 (100)	15,404 (100)	18,429 (100)
Those working under individual order	5,574 (51.8)	3,528 (22.9)	3,403 (18.5)
Under single order	5,191 (48.2)	11,876 (77.1)	15,026 (81.5)
Of these:			
those with payment according to final product	--	9,053 (58.8)	12,098 (65.6)
those that distribute overall earnings taking KTU into account	--	6,420 (41.7)	10,966 (59.5)
those that work under cost accounting conditions	--	1,949 (12.7)	5,268 (28.6)

In practice, in order to evaluate the process of the complication and socioeconomic development of the new brigades and their relationship to the traditional brigades and also individual (nonbrigade) kinds of structuring of labor collectives in industry, it is sufficient to single out the following types (or, more precisely, levels) of brigade organization of labor. The question of the typology of brigades has been discussed in literature from various points of view. Here we are identifying only those types whose dynamics make it possible to trace the development of precisely the new elements in brigade organization.

The first stage: Brigades within whose framework the workers work under individual orders, and there are no elements of the new forms of labor organization--the unified order, cost accounting and so forth. These are the traditionally, as it were, old brigades, that are based on individual labor and individual forms of organization and incentive. Such labor organization has a relatively weak stimulating effect on the development of collectivism. One can say that this is the initial, lowest level of brigade organization of labor. Nonetheless today about 11 percent of all industrial workers are included in brigades of this type.

The second type: Brigades working under a single order. Such brigades also existed previously in industry. This form of labor organization is now used mainly in places where it is practically impossible to break down the volume

of work into separate, individual assignments. For fulfilling the single assignment the brigade receives general earnings which are distributed according to the qualifications and the time worked. Elements of labor organization related to collective work are much more broadly represented in such brigades. The very method of performing the work is a factor that develops collectivism, strengthens discipline and raises the degree of responsibility for the qualitative and quantitative indicators of the joint work. Such labor organization is a higher degree of labor organization than that represented by brigades of the first type. The work under a unified contract provides the basis for collective labor and becomes the main condition for the introduction of the brigade method. Moreover the brigades working under a single order frequently apply the principle of payment for labor according to the final results. Consequently one can speak here about changing over to new forms of brigade organization of labor.

But in these brigades when the overall earnings are distributed they far from always take into account fully and completely enough the concrete labor contribution of each member of the brigade; they usually take into account only the qualifications and the indicator of time worked. Since the worker must perform various kinds of work whose complexity does not always correspond to the category he has acquired, this distribution of the overall earnings does not fully correspond to the interests of the worker and production, and, in the final analysis, reduces the possibility of interreplaceability and combination of occupations, and it also impedes the growth of the effectiveness of labor.

These shortcomings can be eliminated by the third type of brigade organization of labor: Brigades operating with payment according to a single order and the distribution of earnings taking into account the KTU, which is applied in order to account more fully for the individual contribution of each worker to the results of the collective labor of the brigade by decision of the general meeting when distributing the part of the earnings that are in excess of the wage rate--additional earnings, bonuses and so forth. In the majority of cases the wage rate part of the earnings is distributed according to the qualifications and the amount of time worked while the KTU is a general quantitative evaluation of the labor contribution of each worker to the overall results of the labor of the brigade. It depends on the individual labor productivity and the quality of work, the actual combination of occupations, the performance of more complicated work, the increase in the service zone, the replacement of comrades who are absent, assistance in work to other members of the brigade, the observance of labor and production discipline, and also a number of other factors that affect the final results of the work of the entire brigade. As a rule, in these brigades they create agencies of self-management--brigade councils that are elected at a general meeting of the collective by open voting.

The level of social development in brigades of the third type is higher than in the preceding ones. They are like a transitional stage from the lower, simplest kinds of new brigades to the higher and more developed ones. Here the workers participate in the distribution and through the brigade council they are directly enlisted in the management of production. It is typical for these brigades to have a number of elements that not only formally but also

essentially reflect the qualitative peculiarities of collective labor. Predictably, as the socioeconomic progress of the society accelerates and socialist production relations improve further, these brigades become more and more widespread: today about 36 percent of industrial workers are in brigades that have payment according to a single contract and apply the KTU when distributing the overall earnings while in 1980 there were so few that they were not even taken into account by state statistics.

At the same time one sees the appearance of more complex forms of labor organization in which, in addition to the application of the KTU, other mechanisms develop which provide for increasing the effectiveness of labor. With the level of development of productive forces that has been reached and the increased degree of collectivity of labor it becomes not only possible but also necessary in a number of cases to grant workers greater operational-economic independence. This economic independence begins with long-range planning at the level of the brigades, when the collectives of workers are informed of the monthly, annual and sometimes even five-year plans. In its most developed form operational-economic independence is a kind of brigade cost accounting, which means providing for self-supporting production and profit work, material motivation of workers to improve the results of labor and reduce expenditures on production; material responsibility for mistakes in work; and operational-production independence of the collective in disposing of the material and labor resources that have been allotted. A brigade is considered to be on cost accounting if, in addition to plans for the volume of production, the reduction of labor-intensiveness and improvement of the quality of work, it also has planning assignments concerning the wage fund and the norms of expenditure for one or several kinds of raw materials, processed materials, fuel, energy and other material resources.

The existence of the aforementioned elements of economic independence characterize the fourth type of brigade organization of labor: Brigades working under conditions of cost accounting or a contract, or at least have individual elements of economic activity. The basic features of these brigades are the predominance of collective interests, the high degree of solidarity, the effective work of brigade councils and brigade leaders, extensive interaction with other subdivisions, and widespread cooperation with engineering and technical personnel. This type of brigade organization of labor presupposes collectives that are highly developed socially. In this respect there is an interesting analysis of data concerning the operation of a number of enterprises of Leningrad which showed that while in the least developed collectives the labor productivity of the brigades increases by an average of 2.8 percent, in the brigades with a higher level of development it is 5.8 percent; the proportion of workers submitting efficiency suggestions in the former case was 14.2 percent and in the latter case--20.1 percent, while the figures for violators of labor discipline were 7.4 percent and 1.6 percent, respectively.<sup>6</sup>

Data from state statistics do not make it possible to determine the number of workers employed in brigades of each of the four categories mentioned above in any precise way. But the figures given in Tables 1 and 2 make it possible to establish the following approximate correlations<sup>7</sup> (in percentages of all workers employed in industry):

	<u>1980</u>	<u>1982</u>	<u>1984</u>
Workers not included in brigade organization of labor	64	49	39
Workers in brigades of Type I	19	12	11
Workers in brigades of Type II	--	18	14
Workers in brigades of Type III	--	15	19
Workers in brigades of Type IV	--	6	17

Of course the figures given here do not claim absolute precision. But the general correlation between the number of workers employed in various types of brigades is characterized fairly convincingly.

Distinguishing four types of brigades makes it possible to reveal important tendencies and contradictions in the process of the development of brigade organization of labor and industry. In particular, from the figures that have been presented it is clear that, although new forms of brigades spread more rapidly than traditional ones do, the introduction of new forms of brigade organization of labor is a fairly complicated and irregular process. In industry as a whole there is still a prevalence of less developed types of new brigades: while about 50 percent of all workers in industry are joined together in all categories of new brigades, only about 17 percent are employed in the more developed collectives that are operating under the new conditions of cost accounting.<sup>8</sup>

The fluctuations in the quantitative indicators of the distribution of brigades and also the differences in the levels of their effectiveness are frequently explained by the effect of subjective organizational factors.<sup>9</sup> There can hardly be any doubt that this explanation is largely true: the effect of these factors essentially influences the development of brigade forms of labor organization. But it would be a gross oversimplification to limit ourselves to the subjective-organizational side of the matter alone. The irregularity in the development of brigade labor organization, particularly its new forms, is associated with the effect not only of subjective, but also of objective socioeconomic factors that today determine the direction and peculiarities of the development of productive forces.

In the first place, the technical-technological level of production differs not only in various branches, but also at various enterprises of the same branch. Yet, it seems, it is precisely the degree of technical-technological development of production that is the most important objective factor conditioning the greater or lesser breadth of the utilization of brigade methods of work. In the second place, the need to improve forms of collective labor is manifested more appreciably in modern productions that are most closely linked to scientific and technical progress. This is accompanied both by the complexity of technical systems and the scope of dissemination of collective work places, as well as the continuity of technological cycles.

This same area is also influenced by the higher level of sociocultural development of workers in production of the scientific-industrial type that appears under the influence of the scientific and technical revolution: this level not only shapes the demand of the workers for more adequate forms of

organization of collective labor, but also creates prerequisites for extensive introduction of a higher type of brigades with clearly expressed elements of cost accounting.<sup>10</sup>

Of course the idea of a direct and unmediated link between the development of brigade forms of labor organization and the stages of technical progress and the sociocultural level of the workers can be applied only at the abstract-theoretical level of analysis. In the daily life of labor collectives this connection is not expressed as simply and directly. It seems, however, that in this case the abstract-theoretical pattern reflects a real tendency. In the final analysis it is precisely strides in the technical-technological base of production and the higher level of occupational and general culture of the workers that gives impetus to the introduction of new forms of brigade organization of labor as forms that correspond most fully to the needs of modern industrial and scientific-industrial production. And, conversely, the lack of technical-technological strides or the inadequate level of culture of the workers frequently create conditions whereby the new forms of brigade organization of labor do not become widespread and do not produce an appreciable effect.

In this connection differentiated study of factual data concerning various types of brigades, mainly a precise disclosure of conditions under which one type of brigade or another turns out to be effective, is of special interest. And this is understandable, for the organization of the labor of workers is closely linked to the level of technical-technological development of production. "Labor," emphasized K. Marx in this connection, "is organized and divided in various ways, depending on the implements at its disposal."<sup>11</sup>

The materials from state statistics and sociological research do not make it possible to make a direct correlation between various levels of development of the form of brigade organization of labor and the type of production or the social-cultural image of the workers. But initial factual information can be obtained as a result of special, direct analysis of materials from the periodical press. To a certain degree this analysis replaces the insufficient data from direct research.

The central press is devoting special attention to brigades. The crucial nature of the problems related to the development of brigade forms of labor organization in recent years have caused magazines and newspapers to elucidate this subject fairly extensively, publishing materials about brigades of all levels of development in various branches, enterprises and productions. Moreover, in the articles and announcements they not only consider concrete problems, but, as a rule, give objective facts that characterize the life of the brigade, and particularly they give information (direct or indirect) about the technical level of production and the social image of the workers. We have managed to sort out from the materials in the periodical press for 1983-1985 information about 425 brigades that pertains to the organization of each of them and the technical-technological level of production within whose framework one brigade or another works, and also the cultural-technical level of the workers included in them.<sup>12</sup> In general and on the whole this information is sufficient to classify the brigades under consideration according to the four basic levels of brigade organization of labor (types of

brigades) mentioned above, starting with the lowest, where there are no elements of new forms of brigade labor organization, and ending with the highest, where cost accounting conditions prevail.

Table 3--Interconnection Between Types of Brigades and Levels of Development of Production, Education and Qualifications of Workers  
(from materials of the central press)

	Number of Brigades			
	Brigades Distinguished		Of These, % of No. of	
	Using Materials	From the Press	Brigades of This Type	Having an
			Employed in	Increased Pro-
		% of Overall	Running	portion of Highly
		No. of Brigades	Modern	Skilled and Well-
	<u>Units</u>	<u>Distinguished</u>	<u>Equipment</u>	<u>Educated Workers</u>
Total	425	100	--	--
Including:				
Type I	35	8	8	11
Type II	55	13	7	11
Type III	204	48	15	17
Type IV	131	31	32	31

Of course in the materials in the press the brigades of various levels of labor organization are not presented in proportion to their actual distribution in industry. The growing public interest in brigades of the highest type also brings about the increased attention devoted to them in the press and therefore these types are represented especially broadly in our materials. But yet the press analysis is conducted not at all to determine the proportions of distribution of brigades among the various categories--this distribution is much more reliably characterized by the materials from state statistics. The main value of the information gathered from the press consists in that it makes it possible to discover the link between the level of development of production, the general educational level of the workers and the type of brigade (see Table 3). Undoubtedly this link is not absolute. At the most diverse levels of technical and technological development of production and with various educational and skill levels of the workers one encounters all types of brigade organization of labor. But the intensiveness of their distribution in various productions is not the same. The highest type of brigades are encountered the more frequently the higher the technical level of production. It is especially indicative that brigades operating under the conditions of cost accounting are employed 4 times more frequently in the service of modern equipment involving high skills than the simplest brigades are.

The social development of the working class is organically linked to the technical-technological progress of production. The most educated and skilled workers are concentrated in productions with the highest level of development. Yet there can be no simple dependency here and therefore the general



educational level of the workers, which serves as a good indicator of their general culture, can be regarded by us as an independent factor in the development of brigade forms of labor organization.

The materials in the press give relatively incomplete information about the cultural-technical and social image of the workers. But a special analysis of the data that have been collected makes it possible to single out the brigades for the level of education and skills of the workers is known to exceed the average, particularly collectives in whose description it has been especially noted that they have a significant proportion of workers with secondary specialized or a higher level of education, and also workers with high skill categories. From Table 3 one can see that the high educational and skill level is most frequently mentioned in connection with the most developed brigades, that is, cost-accounting brigades, while a high educational level is noted considerably less frequently in the simplest, most traditional brigades.

Obviously, successful introduction of brigades of the new type presuppose as a certain technical base and a certain social-cultural level of the workers. It seems that an understanding of this connection is of not only theoretical but also practical significance. Let us emphasize once again that this connection is statistical in nature. As was already noted, in a certain respect the entire industrial nucleus of the working class in production as a whole has matured for extensive introduction of brigade forms of labor organization. Nonetheless the differences in the levels of development of production and the social-cultural level of the working class are reflected to no small degree in the rates, forms and methods of the dissemination of brigades.

Thus in technically developed scientific-industrial production the dissemination of brigade forms of labor organization is of a limited nature. On the one hand, the technological process here objectively requires collective forms of labor organization, particularly brigades working under a single order, with payment according to the final result; on the other hand, the most skilled and educated workers are concentrated here, the ones interested in operational-economic independence, and, the main thing, those objectively most prepared for making organizational and technical decisions in the process of and concerning production. Consequently, here they can and should raise questions of rapid introduction of the highest forms of brigade organization of labor. In productions that are at the highest stages of technical progress for today one finds the most favorable preconditions for extensive dissemination of cost-accounting brigades, the possibilities of close cooperation between workers and engineering and technical personnel, and so forth. But one should keep in mind that the introduction of cost-accounting brigades, as distinct from preceding types of labor organization, even in developed productions requires essential socioeconomic and organizational transformations at all levels of management of the enterprise.

The situation is somewhat different in the technically less developed productions. Here the introduction of brigade labor organization predictably should be more gradual and slower. It is precisely in these productions, where the traditions of working according to an individual order are very much alive and largely justified, that one must take special care when introducing new forms of labor organization and carefully analyze beforehand

the expediency of applying the new type of brigade as well as a flexible combination of new and old forms of brigade organization and stimulation of labor. The nature of production here is such that collective responsibility for the results of labor and collective forms of payment for it are far from always an objective necessity. Apparently this is why the introduction of collective systems of payment for labor and the application of the coefficient of labor participation when distributing the overall earnings frequently give rise to conflicts. In such cases, instead of the expected strengthening of collectivism one receives the opposite result--a growth of anti-brigade attitudes. Sometimes in order to overcome such a situation the administration resorts to a simpler method of solving the problem--formal, essentially compulsory introduction of the new type of brigades. If at the same time the brigades are transformed into a kind of "technological concept," a "ramrod for fulfilling the plan," and the effect of the social mechanism of self-management is paralyzed by administrative methods of leadership, their decline (or purely formal existence) is something that is predestined.<sup>13</sup> From this standpoint the less developed productions today maintain favorable conditions precisely for the simplest type of brigades. These brigades can appear as a form of strengthening production discipline and, correspondingly, increasing labor productivity.

An analysis of the materials from the press is interesting not only because it makes it possible to determine the socioeconomic environment that is most favorable for the development of various forms of brigade organization. No less essential is the fact that the press describes in detail the problems encountered by various brigades and the ones that are experienced by their members especially keenly. This makes it possible to envision in generalized form the distribution of issues that are most frequently discussed in various types of brigades (see Table 4).

As one can see, in brigades of the first and second types, where elements of individual labor organization continue to play a decisive role, there is the most frequent appearance of problems that are directly related to the distribution of work and payment for it. Issues related to interrelations within the brigade are a continuation of these problems; hence the difficulties in the adaptation by young workers who do not have sufficient qualifications or experience and the lack of desire on the part of highly skilled workers to work in brigades, for the currently existing system of accounting for the individual labor contribution is imperfect and does not make it possible for such workers to significantly increase their earnings by increasing their labor contribution, and so forth.<sup>14</sup>

With the complication of brigade labor organization and expansion of independence the situation changes. In brigades that are working under a single order and distributing the overall earnings taking the KTU into account, and especially brigades that have operational-economic independence, what come to the fore are issues on whose resolution the effectiveness of the work of the collective as a whole depends. One can say that the relationship between the proportion of problems arising regarding wages, on the one hand, and regarding the creation of conditions for normal rhythmic work (for

example, well-arranged material and technical support), on the other, is of a reverse nature in brigades of the simplest type and in brigades which we have included among the highest type.

Table 4--Discussion of Issues of Production Life in Various Types of Brigades (in % of all issues in brigades of the given type, whose discussion was reported in the press)

Brigade Problems Described in Press Materials	Types of Brigades			
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>
Wages	43	45	27	5
Distribution of work	43	--	1	--
Relations within the brigade	7	12	7	6
Material and technical support	7	6	21	49
Inadequate independence of brigade, lack of self-management in brigade	--	9	26	34
Formalism in brigade organization	--	28	18	6
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>

As one can see from Table 4, in places where the workers are working under individual orders or on a single order, but without taking the KTU into account, more than 40 percent of all the problems discussed and that were taken up by the press pertain to wages and only 6-7 percent pertain to questions of material and technical support. At the same time, in brigades working under a single order that distribute earnings taking the KTU into account and have a certain degree of economic independence, only 5 percent of all the problems that arise have to do with wages and about 50 percent have to do with the organization of material and technical support for their work.

Of course it does not follow from this that problems of wages are less significant for workers in cost-accounting brigades than for those who work in other brigades. This is a different matter. One can presume with a fairly large share of conviction that the great operational and economic independence of these brigades means also more active participation of workers in resolving planning and organizational problems, their increased responsibility for the final results of their collective activity and, consequently, a general high degree of interest in creating conditions for the effective work of the entire brigade. At the same time a higher level of occupational and production culture and education of workers in brigades of the highest type, as was noted above, contributes to their awareness of the connection between various factors that determine the fulfillment of the production indicators and, consequently, collective earnings, on the one hand, and the wages of each member of the brigade, on the other.

From this standpoint it is also typical that as the socioeconomic maturity of the brigades increases, greater significance is attached to questions related to the degree of economic independence of the brigade and the development of brigade self-management. Such issues, as is clear from Table 4, simply are not raised in brigades where the workers are working under individual orders. At the same time, more than one-third of all the issues that are discussed and

whose resolution is on the agenda of cost-accounting collectives pertains precisely to expansion of the independence of the brigades. Understandably, this does not mean that in the former case independence and self-management of brigades are carried out without interference. The fact is that in this case the brigades are not organizational units that have been given operational and economic independence and therefore it is as though there is not even any possibility of the appearance of conflicts regarding this issue. But in brigades that are organized on principles of cost accounting it is precisely the number of rights and the real possibility of exercising them that are at the center of attention, for this is the fundamental precondition for more efficient solutions to many problems and for an overall increase in the effectiveness of production activity and the development of true collectiveness.

The problems of independence of the brigades do not arise in an empty space. Practice shows that worker participation in management within the framework of the brigade is frequently arranged according to an existing pattern and frequently amounts only to passive participation in meetings. The brigade council is far from always "written in" to the system of production management, and the number of management functions delegated to it is arbitrarily limited by the administration. Data from a number of investigations show that actually only 30-40 percent of the brigades investigated make independent decisions regarding questions of the distribution of collective earnings, disciplinary measures or the summing up of the results of competition. It is also noted sometimes that an impediment to the development of self-management in the brigades is the lack of confidence on the part of workers in its effectiveness: many of them think that the administration is not interested in granting the workers real rights in administration. About one-third of the workers of machine-building enterprises in various cities of the country who were questioned think that the administration only gives lip service to encouraging worker participation in management but does not take their opinion into account when making concrete decisions.<sup>15</sup>

Therefore the expansion of the authority of the collective in the brigade council (when solving problems related to the utilization of technical equipment and material resources, placement of personnel, distribution of work and earnings of members of the brigade, strengthening production discipline and so forth), including transferring to workers functions of selecting a brigade leader, are considered by workers to be the most important constituent parts of the social-production organization when changing over to new methods of brigade labor.

The figures given in Table 4 make it possible to make one more observation that is of no small significance: the higher the level of socioeconomic development of the brigade, the significance for it of problems of economic activity, production as a whole and the question of the position and role of the brigade in the organizational and economic structure of the enterprise. In brigades with the traditional individual form of organization and payment for labor more than 90 percent of the issues whose discussion was reported in the press pertain to the state of affairs within the brigade. But in places where the brigades are working under a single order, regardless of the

application of the KTU when distributing the earnings, workers link 40-50 percent of all the problems to the organization of affairs in the enterprise as a whole.

From this it becomes completely clear that further development of new forms of organization and stimulation of labor is an indispensable constituent part of measures for improving the system of management of the national economy under the conditions of acceleration of socioeconomic progress. Expansion of the rights of enterprises will produce a result only if the principles of the new economic mechanism are extended to all production units, including brigades. The reverse is also true: Without a radical change in the level of economic independence of enterprises and associations one cannot speak seriously about improving higher forms of brigade organization of labor or developing cost-accounting brigades. This is precisely why the new economic mechanism orients the economy toward the introduction of unified system of cost accounting for all the production units. This will require a radical restructuring in the organization, methods and style of work and in the thinking and psychology that affect both the higher administrative agencies and each labor collective.

#### FOOTNOTES

1. "Materialy XXVII syezda Kommunisticheskoy partii Sovetskogo Soyuz" [Materials of the 27th Congress of the Communist Party of the Soviet Union], Moscow, 1986, p 39.
2. For more detail about the organizational elements that are typical of the new type of brigades see: "Brigadnaya organizatsiya truda. Spravochno-metodicheskoye posobiye" [Brigade Organization of Labor. Methodological Reference Guide], Moscow, 1984, pp 20-21; Naumov, V. P., "The Brigade in the Modern Stage," RK i SM, No 1, 1985.
3. See: "Vliyaniye nauchno-tehnicheskogo progressa na razvitiye kollektivnykh form organizatsii, normirovaniya i oplaty truda" [The Influence of Scientific and Technical Progress on the Development of Collective Forms of Organization, Norm Setting and Payment for Labor], Moscow, 1975, p 13.
4. Ibid.
5. See: "Materialy XXVII syezda KPSS," Moscow, 1986, pp 34, 59, 251. Decree of the CPSU Central Committee, "On Further Development and Increased Effectiveness of the Brigade Form of Organization and Stimulation of Labor in Industry" and the Decree of the USSR Council of Ministers and the AUCCTU, "On Measures for Further Development and Increased Effectiveness of the Brigade Form of Organization and Stimulation of Labor and Industry" -- "Decisions of the Party and Government on Economic Issues (1983-1985), collection of documents, Volume 15, part I, Moscow, 1985, pp 280-288.
6. "Brigadnaya organizatsiya truda. Spravochno-metodicheskoy posobiye," p. 80.

7. Statistical Annuals of the USSR Central Statistical Administration contain information about the number of workers employed in brigades of the highest type where cost accounting is applied. At the same time it is known as the majority of cost-accounting brigades work with payment under a single order and, as a rule, use the KTU when distributing additional earnings and bonuses. If one ignores that small number of cost-accounting brigades that do not work under a single order and do not apply the KTU, and one considers that all of them are working under the single order with the application of the KTU, by using Table 2 one can obtain an idea of the number of people employed in each of the main types of brigades.
8. Taking into account the considerable element of campaigning quality in the work of introducing brigade forms of labor organization (attention was especially drawn to this in the corresponding decree of the CPSU Central Committee, the USSR Council of Ministers and the AUCCTU), these figures should be taken with certain reservations. It is known that statistical reporting sometimes includes collectives where the introduction of new elements of organization and stimulation of labor are completely formulaic in nature. According to the data of certain sociological research, about one-fifth of the overall number of brigades are of a formulaic nature (see: SOTSIOLOGICHESKIYE ISSLEDOVANIYA, No 1, 1986, pp 23, 29).
9. See: EKO, No 11, 1983, pp 87-88; 1984, No 3, p 57; NASH SOVREMENNİK, No 1, 1984, p 124.
10. Concerning the peculiarities of scientific-industrial production and the social image of workers employed there, for more detail see: Gordon, L. A., and Nazimova, A. K., "Rabochiy klass" [The Working Class], pp 107-116; Gordon and Nazimova: "Scientific and Technical Progress in the Production Activity of the Working Class," RK i SM, No 4, 1986.
11. Marx, K., and Engels, F., "Soch." [Works], Vol 4, p 152.
12. An analysis of the materials in the press was done by G. A. Monusova. In the process of the work material from the following central newspapers was used: PRAVDA, SOTSIALISTICHESKAYA INDUSTRIYA, TRUD, and EKONOMICHESKAYA GAZETA; the magazines SOTSIOLOGICHESKIYE ISSLEDOVANIYA, SOTSIALISTICHESKOYE SOREVNOVANIYE, SOTSIALISTICHESKIY TRUD, EKONOMICHESKIYE NAUKI and EKO for 1982-1985. At the same time in-house newspapers from 10 ferrous metallurgies and heavy machine-building enterprises for 1983-1985 were analyzed. They included enterprises with varying relative levels of technical development, which were determined on the basis of expert evaluations made by the corresponding ministries.
13. For more detail about this see: Maksimova, N. K., "Brigades at the Crossroads. Notes on Economics and Morality," EKO, No 8, 1985.
14. See: "Sotsialnyye problemy stanovleniya kollektivnykh form organizatsii truda" [Social Problems in the Emergence of Collective Forms of Labor Organization], Kuybyshev, 1984, pp 21-22.

15. For more detail about this see: Ille, M. Ye. and Sinov, V. V., "On the Development of Self-Management in the Brigades," SOTSIOLOGICHESKIYE ISSLEDOVANIYA, No 3, 1984, p 61; "Sotsialnyye problemy stanovleniya kollektivnykh form organizatsii truda," pp 15, 77; Maksimova, N. K., op. cit., pp 193-194; Komozin, A. N., and Meshcherkin, A. K., "Collective Forms of Labor Under the Conditions of the Economic Experiment," SOTSIOLOGICHESKIYE ISSLEDOVANIYA, No 1, 1986, p 26; Alekseyev, N. I., Goryushin, A. B., and Motkov, S. I., "On Increasing the Economic Independence of Production Brigades," SOTSIOLOGICHESKIYE ISSLEDOVANIYA, No 1, 1986, p 31.

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## LENINGRAD PRIVATE CAB SERVICE ENCOUNTERS PROBLEMS

## Abuses Described

Leningrad LENINGRADSKAYA PRAVDA in Russian 3 Mar 87 p 3

[Article by V. Tarasenko: "Charging by Odometer"]

[Text] As reported last Sunday, an experiment has been started in our city to provide Leningraders with taxi service rendered by privately owned cars. One of the participants is engineer Anatoliy Nikolayevich Prokhorov. Our reporter rode along with him as he set out for the day's work.

When our Volga, bearing the license tag 51-49 LDK, arrived at the Moskovskiy Railroad Station taxi stand, it immediately attracted the attention of cab drivers and people standing in line. No wonder: until then persons driving their own cars tried not to attract attention. If they took on a passenger, they would disappear quickly so that no one could take down their tag number. On that day it was different -- Anatoliy Nikolayevich opened the door widely and invited passengers to enter.

"Hello. I am participating in an experiment," said Anatoliy Nikolayevich to a young man. "Please take note of the odometer reading. The fare is 20 kopecks per kilometer plus 20 kopecks for seating."

Only after he said the above did he ask: "Where to?"

"Slava Prospekt, No. 30."

This first passenger -- V. V. Khomyakov was his name -- had arrived in Leningrad from Groznyy to try his luck at landing a job as welder at the Glavleningradinzhstroy [Main Administration for Housing, Civil Engineering and Industrial Construction of the Leningrad Gorispolkom]. It seemed that while waiting in the line he was approached by the owner of a Zaporozhets, who offered to drive him to Slava Prospekt...for 10 rubles. Vitaliy refused the offer.

"You did the right thing," said Prokhorov approvingly. "People like that make me angry! How many times have I watched how successors to the unforgettable Adam Kozlevich would surround visitors to the city at railroad stations and the



airport, twirling their car keys on a chain. And the prices were so exorbitant that they left the visitors colder than the local frosts!"

Enroute to Kupchino I found out a little more about the driver than I knew from the special permit issued him by the Kalinin VDOAM [Voluntary Society of Private Automobile Owners]. A. N. Prokhorov was 58 years old. A native Leningrader, he fought in the Great Patriotic War. He went to the front at the age of 14 as a ward of the 267th Separate Machinegun Battalion. After the war he worked as a lathe operator and a confectioner. He graduated from a ship-building tekhnikum and had worked in ship construction for 3 decades. He had been interested in car ownership and operation for the last thirteen years.

"My work day ends at 5:15pm," said Anatoliy Nikolayevich. "I do not mind driving around for four hours after work. Besides, I like to deal with people."

The Volga stopped in front of a high-rise.

"Here it is," said Anatoliy Nikolayevich, after which he read aloud the odometer reading. "You owe me 5 rubles 40 kopecks."

Slava Prospekt was deserted. The swirling snow kept everyone at home. We headed for the bus station on Obvodnyy Canal. We were the first cab there. All of a sudden a taxi took up the position ahead of us. We approached the other vehicle for an explanation. Our tempers flared, but -- in vain, since the 2<sup>nd</sup> Taxi Association driver -- N. A. Yuskayev -- simply was not aware of the experiment. How strange: the managers of this organization did not even inform their drivers about the experiment and about the fact that amateur taxi drivers have the same rights as their professional colleagues.

Yuskayev did not offer an argument. Soon afterward we took on an elderly teacher from Ivangorod and transported him to Kultura Prospekt. We were hailed before we could discharge him fully. Our new passengers were the Ivanov family -- father, mother and two children.

"I am glad that you stopped for us," said Antonina Nikolayevna. "Two vehicles with a green light passed by without stopping before you came. And it is cold outside. We have our children with us, as you can see."

"Yesterday, when the experiment was being discussed on the 'Telekuryer', said Valeriy Vasilyevich in support, "I immediately perceived that this is a good and useful thing. Today I became convinced of it."

"Feel free to write down any complaint or suggestion you may have in the special book," said Anatoliy Nikolayevich to the passengers. "All of us drivers are subject to immediate loss of our permit if we render poor service or engage in reckless driving."

The book was lying out in the open, together with the "Cab Driver's Guide". Valeriy Vasilyevich made the first entry: "My family enjoyed the ride. We would like to see as many taxis like this as possible in Leningrad."

We discharged our passengers on Moskovskiy Prospekt and got in the taxi line at the Victory Park metro stop. I stuck my head out the window and asked M. V. Agapov, the driver of "real" taxi 27-17 LEV, the question:

"What do you think about the experiment?"

"Very little. Nothing will come of it."

"Why not?"

"They will drive around a bit, beat up their cars, lose money on repairs and gasoline, and finally give up."

Prokhorov overheard the conversation. He was not disturbed by what he had heard. He spoke calmly and with conviction. "One thing is clear: Leningraders have a great need for taxis, to use particularly evenings, on holidays and on days off from work. As far as the personal benefit to the individual amateur cab driver is concerned, only time will tell. That is what the experiment is for. Also, a person cannot measure the worth of his labor only in terms of personal advantage."

It was the first day of the experiment. It would seem that it is too soon to reach any conclusions. However, it seems to me that situations had already cropped up which require attention on the part of the VDOAM Lenoblgorsovet [Leningrad Oblast Municipal Soviet]. Let me first tell you about the signs reading "EXPERIMENT-TAXI". They were made of ordinary paper. In the daytime they can be read fairly well, but what about at night? An illuminated sign is unquestionably needed. A photograph of the driver should definitely be a part of the VDOAM permit, the same, incidentally, as in the case of ordinary cabs. This would prevent temptation on the part of a driver to pass the permit to another driver. It would also be a good idea to authorize amateur cab drivers to respond to calls for service made by telephone. It is necessary to have a dispatching station which would control taxi operations. Let us not forget that, come May, the plan calls for thousands of them! Uncontrolled activity of amateur drivers will be bad. In a word, the "taxi experiment" bears close watching.

Dusk was falling. The odometer showed that Prokhorov was "rolling up" his 300th kilometer. It was time to tally up the results. On that Sunday he had had 22 passengers and took in 34 rubles, 8 rubles 40 kopecks of which he spent for gasoline. That was the first day. The experiment was to go on for two months. Privately owned cars carrying the "TAXI" sign were to serve the people.

#### Correspondent on Experiment

Leningrad LENINGRADSKAYA PRAVDA in Russian 9 Apr 87 p 2

[Article by V. Tarasenko: "Charging by Odometer"]

[Text] The article of the above title published in LENINGRADSKAYA PRAVDA of 3 March 1987 drew a large number of comments from readers. For this reason,

we decided to continue our discussion about using privately owned cars as taxis and bring forth the problems that have come to light.

Let us start discussing our mail with a letter from taxi driver P. V. Sapelkin. He writes: "I am surprised at the route Comrade Prokhorov used to drive his passenger from the Moskovskiy Railroad Station to Slava Prospekt, and at why he charged 5 rubles 40 kopecks. What is this, a mistake or an incorrect odometer reading?"

The same question was asked, but unfortunately not as well, by V. V. Kozlov, A. P. Maslennikov, M. P. Mikhaylov, Yu. V. Kozlov, V. D. Trifonov; a group of drivers from the First Taxi Enterprise who wish to remain anonymous; and by others. The vast majority of the letter writers mentioning the 5 rubles 40 kopecks are taxi drivers. This is understandable. They know the city well and could easily inflate the fare. That is why it is they who suggest that the writer travel the same route in another vehicle. He did just that.

The following is the route Prokhorov followed to take his passenger from the Moskovskiy Station to Kupchino: Nevskiy Prospekt - Alexander Nevskiy Square - Obukhovskaya Oborona Prospekt - Professor Kachalov Street - Second Luch Street - Bekhterev Street - Sedov Street - Ivanovskaya Street - the overpass - Slava Prospekt. He rode past building No. 30, turned around at building No. 4 and returned. When we drove that route, we saw clearly that Prokhorov made a mistake -- in arithmetic. He misread the odometer. We were able to locate Khomyakov with the help of the newspaper staff. Prokhorov apologized to him and refunded him 2 rubles 20 kopecks.

It goes without saying that Prokhorov did not take the best route; it would have been shorter and quicker to go via Ligovskiy Prospekt. He also erred in what he charged the passenger. But let us not forget that this was the first time that engineer Prokhorov rendered his service.

This particular mistake brought much to light. First, calculations cannot be made conveniently by reading the odometer. Reader M. G. Maltsev is right: "Just try to decipher the small figures on the kilometer counter when you are sitting behind the driver, especially late in the evening." For this reason, it seems to us that consideration must be given to equipping privately owned cars used as taxis with taxi meters.

Also, the provision of the mere Cab Driver's Guide to private cabs is insufficient. They also must be made familiar with the regulations and various instructions relating to taxi operation; treatment of passengers; calculating the fare; and learning about all changes, such as those pertaining to Leningrad traffic, etc. Who is going to do this? Which brings us to the main question: Under whose supervision will private cabs operate in Leningrad? Let me remind you that the "taxi experiment" is the responsibility of the VDOAM [Voluntary Society of Private Automobile Owners] at the Lenoblgorsovet [Leningrad Oblast Municipal Soviet].

"It is very commendable that the city has decided to support the Individual Labor Law which takes effect on 1 May 1987 by starting the "taxi experiment"

without waiting for further instructions from above. However, what was the basis for introducing additional limitations on the right to participate in the experiment: three-year membership in the VDOAM? I do not see what connection there is between the voluntary society and citizens' right to individual labor activity," states the letter from war and labor veteran candidate of technical sciences D. B. Potashnikov.

"What about the thousands of experienced drivers who are not members of the VDOAM?," asks driver A. N. Marakasov of the Leningrad Railroad School service base. "My wife was issued her driver's license in 1984. Her entire learners' group was given VDOAM membership automatically (it was explained that this would make their test easier). Now my wife has the right to drive passengers for hire, while I, who have 13 years as a professional driver, do not."

"What is the VDOAM? Any car owner when asked this question will snicker and throw up his hands in hopelessness," says V. I. Dmitriyev and the nine other people signing his letter.

There are dozens of letters similar to the above in our mail. So, why the VDOAM? We turned for an answer to A. A. Zorin, Transportation Administration chief, Leningradspolkom.

"Early this year the Lensovet Ispolkom set up a committee to prepare and carry out the experiment. The committee carefully studied all possibilities of organizing the work of private cabs in our city and came to the conclusion that it is the VDOAM that is most suitable for the private cab driver. Therefore, the society was tasked with selecting the people who were to participate in the experiment."

Incidentally, the experiment is also being conducted under the aegis of the VDOAM in other cities of the RSFSR -- Grozny, Astrakhan, Kuybyshev, Ulyanovsk. But in other republics, private cabs are operating as a part of other organizations, such as the personal needs service combine in Tallin, for example. Cooperatives consisting of private cab owners having their own regulations and a self-management system are also being set up. As you can see, the organizational forms private cab operation can assume are highly varied. As a matter of fact, in this experiment the optimum variant will be selected.

Judging by the letters, many readers have a great deal of interest in the "taxi experiment." Thus, engineer F. Z. Yakushevich suggests that private cab operation be organized by selling single-use tickets to drivers through the savings bank. A. K. Yakovlev is of the opinion that permission should be granted by the finance departments of rayispolkoms (with the formalities handled in the GAI [City Automobile Inspection]). S. R. Novozhilov would like to see an increase in the tax (be reminded that it is presently 30 rubles a month), but with resolution of the repair and replacement parts problem.

A very important problem is raised in a letter from reader A. A. Dmitriyev. "Just try to take a cab in Zelenogorsk," writes Anatoliy Alexsandrovich, "going to, say, Pervomayskoye, Polyany or Kirillovskoye. A driver is simply not willing to be paid according to the odometer reading; he will say that he

will not be permitted to deduct 50% or the total for the empty run back. What is the private cab driver to do? I will not even mention the roads -- that is our headache. In spring and fall you need a tractor to get through. That is why I suggest that some thought be given to raising the fare -- both for state-owned and private taxis -- in rural areas."

Included in the mail are letters written by people who have a decidedly negative view of the experiment. Quite a number of them are professional taxi drivers. One of them -- 3rd Taxi Enterprise driver A. V. Zhelnin -- admits frankly that his ire is raised when he sees "Zhigulis" and "Moskviches" displaying the "Taxi" sign at a stand. "I work according to a plan; I earn a wage; they are taking away work from me. Amateur taxi drivers should be prohibited from waiting at the taxi stand for passengers to come along."

His opinion is shared by drivers Fedotov, Abakumov, and Grishin of LPTT [Leningrad Taxi Transportation Enterprise] No. 6. They base their argument on the fact that the driver of the "Zhiguli" bearing license tag 33-83 LDZh refused to take on an "unprofitable" client, instead directing him to a state-owned vehicle.

A disturbing example is cited by a letter from lathe operator Vladimir Drozdov. He wanted to use the services of an amateur taxi driver (tag number not included, unfortunately) to take him from the Titan moving picture theater to the Baltiyskiy Train Station. The driver quoted a fare twice as large as that reckoned by the meter of a regular taxi.

Both amateur taxi drivers are in the wrong, of course. Let us repeat that every driver of a privately owned taxi has a special book for making entries relating to his work. Incidentally, every driver is made to know that the law holds him personally responsible for any harm done to passengers or any property losses they may suffer.

However, the statements made by Zhelnin and his colleagues are unjustified. Taxi drivers -- be they professional or amateur -- are subject to the same regulations which give them equal rights in the passenger service area. We tend to agree with the viewpoint of taxi driver A. L. Timofeyev: "I have no problem with private cabs, since there is enough work for everybody in our city. The main thing is for the passenger to be pleased with the service."

Quite true is the statement, supported by statistics, related to our reporter by V. A. Usov, deputy chief of the association Lenpassazhiravtotrans [Leningrad Passenger Motor Vehicle Transportation]: "There is a shortage of cabs in Leningrad. In 1981 there were 5,500, but now 3,391 vehicles are in service. For this reason, privately owned taxis constitute a reserve the city needs badly. Thoughts about competition are irrelevant. We must work together, in a friendly manner, for the benefit of all, mainly Leningraders."

The first month of the experiment showed that there is a multitude of problems. The Lengorispolkom committee will have plenty to do. We thank all those who responded to the "Charging by Odometer" article. All letters will be turned over to the Transportation Administration, which will receive suggestions relative to the "taxi experiment" from persons who have not yet sent in any.

Let me conclude our survey by citing an excerpt from a letter from reader I. Kh. Podopreyev: "The experiment will point out the pros and cons, which will require thorough and objective study. In a word, let us not make any snap decisions."

So, let us wait and see what results the experiment will bring.

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END